United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Illinois Agricultural Experiment Station

Soil Survey of Macoupin County, Illinois

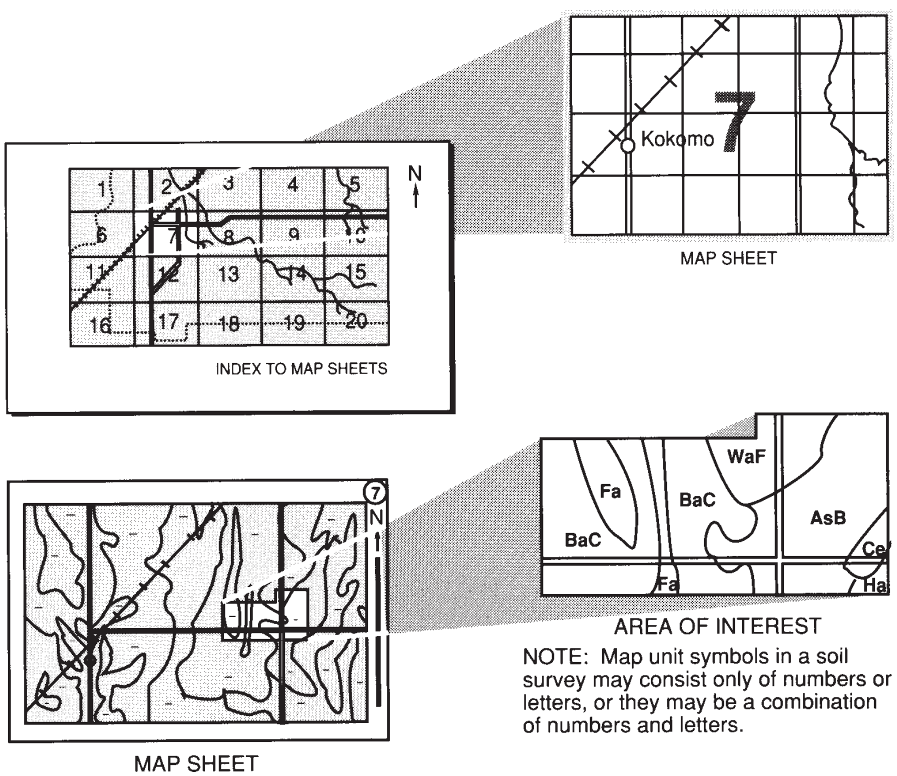
How To Use This Soil Survey

The **detailed soil maps** can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 2000. Soil names and descriptions were approved in 2000. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2000. This survey was made cooperatively by the Natural Resources Conservation Service and the Illinois Agricultural Experiment Station. Financial assistance was provided by the Macoupin County Board and the Illinois Department of Agriculture. The survey is part of the technical assistance furnished to the Macoupin County Soil and Water Conservation District.

Cover: Ponds and wetland sediment basins in areas of the moderately sloping Bunkam and Atlas and strongly sloping Hickory soils.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service homepage on the World Wide Web. The address is http://www.nrcs.usda.gov.

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Issued 2004

Numerical Index to Map Units

Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

William J. Gradle
State Conservationist
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Soil Survey of
Macoupin County, Illinois

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United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
the Illinois Agricultural Experiment Station

General Nature of the County

Dan McCandless, Macoupin County Soil and Water Conservation District, helped prepare this section.

Macoupin County is in the west-central part of Illinois (fig. 1). It is about midway between St. Louis, Missouri, and Springfield, Illinois. It has an area of 555,250 acres, or about 864 square miles. It is bordered on the north by Sangamon and Morgan Counties, on the east by Montgomery County, on the south by Madison County, and on the west by Jersey and Greene Counties.

Woodland makes up about 84,800 acres in the county (Iverson et al., 1989). Much of this acreage is unimproved land along the major drainageways. This land provides suitable habitat for plentiful wildlife. More than 1,200 acres of manmade lakes and about 150 miles of streams provide opportunities for fishing and boating.

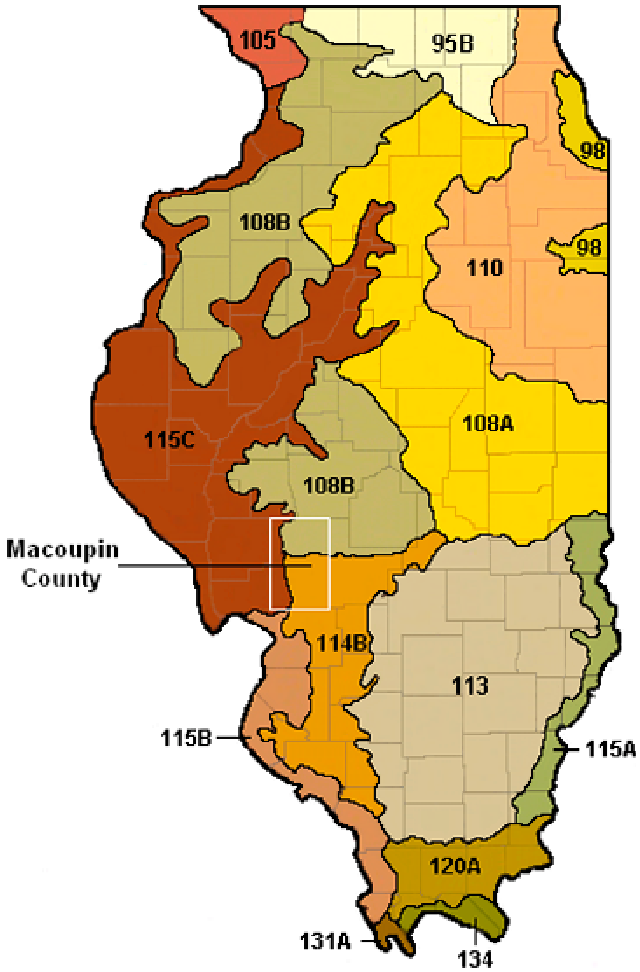
The population of the county was 49,019 in 2000 (United States Census Bureau, 2002). Carlinville, the county seat and the largest city in the county, has a population of 5,685 within its incorporated boundaries and about 8,500 when unincorporated subdivisions are taken into account.

This soil survey updates the survey of Macoupin County published in 1990 (Hodges, 1990). In addition to providing information about the soils in a digital format, this update reevaluates some of the transitional soils and the soils on stream terraces.

History and Development

Archeological studies of artifact remains have shown that the area now known as Macoupin County was used as a hunting ground by Paleo-Indians up to 14,000 years ago. While settlements of the Archaic and Woodland groups centered around the major rivers in the region, this area was probably within the northern reach of a rich hunting ground for groups of people who were centered for a time around a city that was located at the Cahokia Mounds. Evidence of the hunting camps, seasonal villages, and occasional burials of these people has been found on the higher elevations in the proximity of creeks throughout the county.

By the time of European exploration, a dominant historic Indian group was not resident in this area, but the Osage, Delaware, Kickapoo, and Pottawattomie peoples continued to use the area as a hunting



LEGEND

95B—Southern Wisconsin and Northern Illinois Drift Plain

98—Southern Michigan and Northern Indiana Drift Plain

105—Northern Mississippi Valley Loess Hills

108A and 108B—Illinois and Iowa Deep Loess and Drift

110—Northern Illinois and Indiana Heavy Till Plain

113—Central Claypan Area

114B—Southern Illinois and Indiana Thin Loess and Till Plain

115A, 115B, and 115C—Central Mississippi Valley Wooded Slopes

120A—Kentucky and Indiana Sandstone and Shale Hills and Valleys

131A—Southern Mississippi Valley Alluvium

134—Southern Mississippi Valley Silty Uplands

Figure 1.—Location of Macoupin County and major land resource areas (MLRAs) in Illinois (USDA, 1981).

ground. The French laid claim to the entire Mississippi Valley from 1673 to 1763. The English took possession of all French lands east of the Mississippi at the end of the French and Indian War.

At the time Illinois was established as a State in 1818, the area now known as Macoupin County was the northern part of Madison County. The area then became the eastern part of Greene County when that county was established in 1821.

On January 17, 1829, Macoupin County was established. The name “Macoupin” came from a French word for a wetland plant that is common in low areas of the county. The name has been translated to mean “Indian potato.” There has been some debate over which plant the name identifies. The State legislature laughed at the idea of a county being established in a place consisting of creeks and marshes. The first court was held in private homes and was eventually replaced by a log building at the center of the Carlinville town square in 1830. Ten years later that building was replaced by a more permanent two-story brick structure in the center of the square.

In 1867, the cornerstone of a new courthouse was laid. This building, which is of grand proportions and architectural beauty, is now listed in the National Register of Historic Sites. It was the center of much controversy. Supposedly, the indebtedness taken on by the county to pay for this building kept the county from being divided in two. The building also ensured that Carlinville would remain the county seat for a long time to come (Sesquicentennial Historic Committee, 1979).

Physiography and Drainage

During the Pleistocene, the Illinoian glacier covered all of Macoupin County. In most areas of the county, deposits of glacial drift average 50 feet thick (Willman and Fry, 1970). In a small area, however, the drift is as

much as 200 feet thick. The silty loess covering the drift is 50 to 100 inches thick. After the glacier receded, the county was nearly level. As a result of geologic erosion, stream valleys and drainageways dissect the landscape. The highest elevation in the county, about 700 feet, is in Scottville Township. The lowest elevation, about 487 feet, is where Macoupin Creek leaves the county.

The county is drained by several creeks. The largest of these are Apple Creek, in the northwest corner of the county; Joe's, Solomon's, Nassa, Otter, Lick, Bear, and Hodges Creeks, in the west-central part; Macoupin Creek, which crosses the county in a westward direction, near its center; and Cahokia Creek, which has its origin in the southeast corner. Early settlements were established adjacent to these creeks, because early soil rankings appraised timbered soils as the most productive and prairie soils as the least.

Farming and Industry

Farming is the most important enterprise in the county. An estimated 1,092 farms make up about 71 percent (395,696 acres) of the county's total acreage. (USDA, 1997) Corn and soybeans are the major crops. Secondary farm products include wheat, hay, cattle, hogs, orchard crops, and timber. Most of the soils are nearly level, but the acreage of steeper soils is considerable. Some of the most productive farmland in the State is in this county.

The early settlers believed that if trees could not grow in an area, no crops could grow there either. Thus, the prairies were viewed as barren, with poisonous snakes and the extensive root system of native plants acting as barriers to agricultural development. The abundance of wild game took pressure off the early settlers to raise much livestock. The sustenance of the settlers consisted of a wide variety of garden and vegetable crops. Corn was the main row crop.

After the development of the steel-bottomed plow, dramatic increases were made in the amount of ground tilled. Aided by steadily improving transportation systems, farmers were able to produce and market a surplus of what they needed to survive.

During the period 1879 to 1929, coal mining was the most important economic enterprise in the county. Some mining still occurs in the county, but its importance to the local economy is dwindling. Carlinville has become a trucking center, is the location of a Fortune 500 dairy, and is home to Blackburn College, one of only four work colleges in the Nation. In addition, there is continued manufacturing growth along Interstate 55 and State Route 4.

Subsurface natural resources include water, sand and gravel, and coal. Water for most farms is drawn from wells drilled into aquifers. Sand and gravel are in small quantities. Coal is mined from several large underground mines.

Most of the water supply needs in the county are met by drinking water reservoirs, which are in various parts of the county. Rural water supply systems have been developed at an accelerated rate. In the past, farmers relied on farm ponds and creek water for their livestock needs while cisterns and shallow wells provided most of the water for domestic needs.

Beaver Dam State Park provides opportunities for recreational activities, including camping, archery, fishing, and limited hunting. Prairie remnants are features of many of the pioneer cemeteries and railroad rights-of-way. Denby Prairie, along the Shipman Blacktop south out of Carlinville, is an example of one such remnant. The Macoupin Woods is a 40-acre patch of virgin timber that conservation efforts have managed to set aside. It is located east of Palmyra.

Transportation Facilities

Transportation facilities in Macoupin County include several railroads; Interstate 55, which runs through the southeast corner of the county; and U.S. Highway 67, which runs through the southwestern part. State Highways 4, 16, 108, 111, and 159 are important transportation links. Most of the township and county roads are paved with blacktop.

Railroads provide both passenger and freight service. They pass through the more populated areas. In 1852, the Chicago and Alton Railroad was completed across the county. The completion of the railroad greatly improved communications, mail delivery, and transportation of farm produce. Towns along the railroad prospered, while those a few miles away declined. This trend was similar to what happened to towns lining the stagecoach routes that dominated area transport in previous years.

The county has no commercial passenger air service.

Climate

Prepared by the National Water and Climate Center, Natural Resources Conservation Service, and the Illinois State Water Survey.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Carlinville in the

period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 31 degrees F and the average daily minimum temperature is 23 degrees. The lowest temperature on record, which occurred at Carlinville on February 13, 1905, is -23 degrees. In summer, the average temperature is 75 degrees and the average daily maximum temperature is 86 degrees. The highest recorded temperature, which occurred at Carlinville on July 24, 1934, is 113 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total average annual precipitation is about 38.6 inches. Of this, nearly 22 inches, or about 57 percent, usually falls in April through September. The growing season for most crops falls with in this period. In 2 years out of 10, the rainfall in April through September is less than 11 inches. The heaviest 1-day rainfall on record was 6.2 inches at Carlinville on July 8, 1942.

Average seasonal snowfall is 20.7 inches. The greatest snow depth at any one time during the period of record was 20 inches at Carlinville on March 8, 1978. On the average, 24 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

How This Survey Was Made

This survey was made to provide updated information about the soils and miscellaneous areas in Macoupin County, which is a subset of Major Land Resource Areas (MLRAs) 108B, 114, and 115C (fig. 1). MLRAs are geographically associated land resource units that share a common land use, elevation, topography, climate, pattern of water and soils, and vegetation (USDA, 1981). Map unit design is based on the occurrence of each soil throughout the MLRAs. In some cases a soil component may be referred to that does not occur in the Macoupin County subset but that has been mapped within the MLRAs.

The information in this survey includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses.

Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They prepared new soil profile descriptions and studied many existing soil profile descriptions. These descriptions show the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind or segment of the landscape. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landscape, soil scientists develop a concept, or model, of how the soils were formed. Thus, during the update, this model enables the soil scientists to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Individual soils on the landscape commonly merge into one another as their characteristics gradually change. To construct an accurate map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they observed. The maximum depth of observation was about 80 inches (6.7 feet). The soil scientists noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, soil reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they

could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Interpretations are modified as necessary to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a seasonal high water table within certain depths in most years, but they cannot predict that the water table will always be at a specific level in the soil on a specific date. After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Aerial photographs used in this update survey area were taken in 1993. Soil scientists also studied U.S. Geological Survey topographic maps enlarged to a scale of 1:12,000 and orthophotographs to relate land and image features. Specific soil boundaries from the soil maps published in 1990 were drawn on the orthophotographs. Adjustments of soil boundary lines were made to coincide with the U.S. Geological Survey topographic map contour lines and tonal patterns on aerial photographs.

The descriptions, names, and delineations of the soils in this county may not fully agree with those of the soils in adjacent counties. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the counties.

Formation and Classification of the Soils

This section relates the soils in the survey area to the major factors and processes of soil formation and describes the system of soil classification.

Formation of the Soils

Steve Suhl, Resource Soil Scientist, Natural Resources Conservation Service, prepared this section.

A soil is a three-dimensional natural body consisting of mineral and organic material that can support plant growth. The nature of any soil at a given site is the result of the interaction of the major factors of soil formation and their influence on the processes of soil formation.

Factors of Soil Formation

The major factors of soil formation are parent material, climate, plants and animals, topography, and time (Jenny, 1941). Climate and plants and animals act directly on the parent material, which is modified by topography over time. Theoretically, if all these factors were identical at different sites, the soils at these sites would be identical. The diversity among soils is the result of unique combinations of the soil-forming factors. Soils are continually evolving in response to these factors.

Parent Material

Parent material is the unconsolidated geologic material in which a soil forms. It determines the basis for the chemical and mineralogical composition of the soil. The properties of the parent material vary greatly, sometimes within small areas, depending on how the material was deposited. The soils in Macoupin County formed in a variety of parent materials. The majority of the soils formed in loess. Other soils formed in glacial drift, alluvium, eolian deposits, bedrock residuum, or a combination of these.

Glacial drift is glacially deposited sediment. There are two main types of glacial drift—till and outwash. Till is material that was deposited directly by glacial ice with little or no water action. It typically has particles that vary in size, including sand, silt, clay, and some pebbles, cobbles, and larger rock fragments. The small pebbles in till generally have distinct edges and corners, indicating that they have not been subject to intense washing by water. Till is well graded and unstratified. The till in Macoupin County was deposited during the Illinoian age. Soils that formed in till are of minor extent in the county. Hickory soils are examples.

During the Sangamon interglacial stage, which occurred between the Illinoian and Wisconsinan stages, the relatively flat, stable till surface was exposed to intense weathering. A soil formed on the till surface and was subsequently buried by depositions of loess. In Macoupin County, the loess deposits were thick enough to remove the soil from the influence of the active soil-forming processes. The soils that formed in the till are called paleosols, and they reflect the environmental conditions of their formation period. There are several types of paleosols. The two types in Macoupin County are called buried and exhumed paleosols. A buried paleosol generally is no longer subject to the soil-forming processes that created it. In some areas where the loess deposits are thinner, however, the current processes of soil formation have extended through the loess and into the upper part of the paleosol. The result is a welded soil profile. Elco soils are examples of soils that formed in these areas. An exhumed paleosol is in areas where erosion has removed the overlying loess and exposed the paleosol to the modern soil surface. Atlas soils are examples of soils that formed in these areas.

Outwash includes all sediments deposited by running water from melting glaciers. The size of the particles that can be transported by water, either as bed load or suspended sediments, depends on the gradient, volume, and velocity of the moving water. Water velocity decreases when a stream loses grade or flows into a larger body of water. As the velocity decreases, suspended particles begin to settle out. The coarser materials, such as gravel and cobbles, are deposited nearer to the source; the finer materials, such as fine sands, silts, and clays, are carried farther downstream. The pebbles in outwash generally have rounded edges and corners, indicating that they have been subject to intense washing by water. Outwash is poorly graded, is stratified, and varies in composition

because of variations in the flow of water. Outwash is generally permeable. The outwash in Macoupin County was deposited during the Wisconsinan age and is generally overlain by thin deposits of loess. Soils that formed in loess and the underlying outwash are of minor extent in the county. Camden soils are examples.

Alluvium is material deposited by running water. It is generally finer textured and more weathered than outwash. There are two major types—stream alluvium and valley-side alluvium.

Stream alluvium is soil material deposited by floodwater along streams. The source of the alluvium generally is material eroded from other parent materials farther upstream in the watershed. Stream alluvium is poorly graded, stratified, and well sorted. The texture of the soil material varies, depending on the speed of the floodwater, the duration of flooding, and the distance from the streambank. Once the faster moving water within the stream channel is outside the channel, it slows quickly as the concentrated channel flow changes to broad overland flow. The capacity of the stream to carry a sediment load decreases as the water velocity decreases. The coarser textured material is deposited first, near the channel. The fine textured material is carried a greater distance from the channel. Landes soils are examples of soils that formed in the coarser textured alluvium close to the stream channel. Wakeland soils formed in the finer textured alluvium farther from the stream channel.

Valley-side alluvium is poorly graded and stratified, but it generally is not well sorted. The source of the alluvium generally is material eroded from parent material directly upslope. The soils that formed in valley-side alluvium are similar in character to the upslope source material. Terril soils formed in valley-side alluvium.

Eolian sediments are materials transported and deposited by the wind. These sediments were derived from periglacial regions where sparse vegetation and low temperatures and precipitation rates left unconsolidated sediments exposed to wind action. The unconsolidated sediments, primarily outwash, were then stripped of their finer components by the strong wind. Eolian sediments were deposited during the Wisconsinan age. Loess is the major parent material in Macoupin County. It is fine grained and poorly graded. It is about 7 feet thick on the nearly level uplands in the northern part of the county and thins to about 4 feet in the southern part. Fayette and Buckhart soils formed in loess.

The bedrock residuum in Macoupin County is material weathered from sandstone or siltstone. It is generally grayish and unstratified. The bedrock is Pennsylvanian in age. The soils that formed in bedrock residuum are of minor extent in the county. Judyville soils are examples.

Climate

The climate in Macoupin County has significantly affected the soil-forming processes. The county has a humid, temperate climate. In this climatic environment, physical and chemical weathering of the parent material can occur along with the accumulation of organic matter, the decomposition of minerals, the formation and translocation of clay, the leaching of soluble compounds, and alternating periods of freezing and thawing.

The two climatic factors that have the greatest influence on soil-forming processes are precipitation and temperature. Precipitation supplies the moisture needed for most physical and chemical processes and determines the depth to which these processes occur. The soil moisture regime, which is partially a function of precipitation, determines the processes that occur in the soil. The rate at which these physical and chemical processes proceed depends on the temperature, particularly the soil temperature regime.

Two soil moisture regimes occur in the county—aquic and udic. The aquic moisture regime is a reducing regime in a soil that is virtually free of dissolved oxygen because of saturation by water, including water of the capillary fringe. Biological activity is necessary for the removal of dissolved oxygen from ground water. Therefore, the soil temperature must be above biologic zero (5 degrees C) for some time while the soil is saturated. Sawmill soils have an aquic soil moisture regime. The udic moisture regime is one in which the soil moisture control section is not dry in any part for as long as 90 cumulative days per year. Also required, except for short periods, is a three-phase system, solid-liquid-gas, in part or all of the soil moisture control section when the soil temperature is above biologic zero. Camden soils have a udic soil moisture regime.

The mesic soil temperature regime is the only temperature regime recognized in the county. This regime is one in which the mean annual soil temperature is 8 degrees to less than 15 degrees C and the difference between mean summer and mean winter soil temperatures is more than 5 degrees C at a depth of 20 inches.

Plants and Animals

Living organisms impact soil formation. They include vegetation; macrofauna, such as earthworms; micro-organisms, such as algae, bacteria, and fungi; and humans. The vegetation under which a soil forms

influences several important soil properties, such as color, structure, reaction, and content and distribution of organic matter. Vegetation extracts water from the soil, recycles nutrients, and adds organic matter to the soil. Gases derived from root respiration combine with water to form acids that influence the weathering of minerals.

Several different types of vegetation have influenced soil formation in Macoupin County. These include prairie vegetation, upland hardwood forests, forest and prairie vegetation in transitional areas, and vegetation on flood plains.

Prairie vegetation.—This vegetation produces large amounts of organic matter in the soil. Most of the organic matter is directly deposited within the developing soil profile through the decomposition of roots and the incorporation of surface organic residues by animals. The well distributed subsurface accumulations of organic material result in development of a thick, dark surface layer. Buckhart soils formed under prairie vegetation. The average content of organic matter in the surface layer of these soils is 3 to 4 percent.

Upland hardwood forests.—These forests contribute organic matter to the soil primarily when they add leaf litter to the surface each year, resulting in a thin, dark surface layer. Fayette soils formed under this type of vegetation. The average content of organic matter in the surface layer of these soils is 1 to 2 percent.

Forest and prairie vegetation in transitional areas.—Soils that formed in these areas exhibit modified characteristics of both forest and prairie vegetative regimes. An example is Clarksdale soils, which have a surface layer that is slightly thinner than that of the soils that formed under prairie vegetation. The average content of organic matter in the surface layer of Clarksdale soils is 2 to 3 percent.

Vegetation on flood plains.—The soils on these plains formed under a combination of trees and grasses. They have colors that largely reflect those of the sediments in which they formed. Lawson soils are examples.

Bacteria, fungi, and many other micro-organisms decompose organic matter and release nutrients to growing plants. They influence the formation of peds. Soil properties, such as drainage, temperature, and reaction, influence the type of micro-organisms that live in the soil. Fungi are generally more active in the more acid soils, while bacteria are more active in the less acid soils.

Earthworms, crayfish, insects, and small burrowing animals mix the soil and create small channels that influence soil aeration and the percolation of water. Earthworms help to incorporate crop residue or other organic matter into the soil. The organic material improves tilth. In areas that are well populated with earthworms, the leaf litter that accumulates on the soil in the fall is generally incorporated into the soil by the following spring. If the earthworm population is low, part of the leaf fall can remain on the surface of the soil for several years.

Human activities have significantly influenced soil formation through their effect on soil health. Soil health has been damaged by degradation processes, such as erosion, compaction, contamination, disaggregation, loss of biological activity, and nutrient depletion. Native forests have been cleared and wet soils drained for farming and other uses. The development of land for urban uses has significantly influenced the soils in some areas.

Topography

Topography, or the configuration of the land surface in terms of relief and contour, influences soil formation mainly through its effect on surface water runoff or accumulation and on erosion and deposition. The degree of the effect of topography depends on the type and stability of the land surface.

There are two types of land surfaces—aggrading and degrading—and three levels of stability—stable, metastable, and active. The aggrading surfaces in Macoupin County receive material either through the deposition associated with flooding or through the accumulation of erosional sediments. Landes soils formed on natural levees on flood plains. The natural levees are an example of active-aggrading land surfaces. They receive depositions of sediment during frequent episodes of flooding. Terril soils formed on footslopes that receive runoff with some accumulation of hillslope sediments. Footslopes are an example of metastable-aggrading land surfaces. Virden soils formed in broad, low areas on drainage divides that receive runoff from upslope areas but accumulate little sediment from hillslope erosion. These broad, low areas are an example of stable-aggrading land surfaces.

Degrading surfaces lose material primarily through erosion. Keomah soils formed on the broad summits of interfluves. These broad summits are an example of stable-degrading surfaces, where runoff is limited. Fayette soils are on the shoulders of hillslopes and thus are more susceptible to runoff and erosion than the Keomah soils. Shoulders are metastable-degrading surfaces, where increased runoff leads to higher rates of erosion. Backslopes are an example of

active-degrading surfaces. Hickory soils are on backslopes, where runoff and erosion rates are highest.

Time

The length of time that the parent material has been exposed to soil-forming processes influences the degree of genetic horizon development that occurs in the soil. Evaluation of time as a factor of soil formation is difficult because of the effects of the other soil-forming factors. The influence of time can be modified by erosion, deposition of material, topography, and kind of parent material.

Soils on flood plains receive alluvial material during each flood. This repeated deposition interrupts soil formation. Lawson soils are examples of immature soils that formed in stream alluvium.

Processes of Soil Formation

Soil forms through the complex interaction of four general processes. These processes are *additions, transformations, removals,* and *translocations*. The degree of interaction of each these processes varies, resulting in the variety of soils on the landscape.

Additions to the soil can occur directly through the deposition of sediment by floodwater or through the accumulation of windblown sediment. They also occur through the accumulation and incorporation of organic matter in the A horizon of mineral soils. The most striking example of this addition is the formation of a mollic epipedon. The mollic epipedon forms in an environment that features optimum amounts of moisture, temperature, and bivalent cations. Such an environment allows grasses to thrive. The grassland vegetation produces large amounts of organic matter. Microbial decomposition of subsurface organic residues and of surface organic residues taken underground by soil fauna results in the most recognizable property of the mollic epipedon, a dark color. Ipava soils are examples of soils that have a mollic epipedon.

Transformations are changes that take place in the soil through the interaction of biological, chemical, and physical processes. An example is the reduction of iron and manganese oxides, which occurs in soils that are saturated with water. Typically, iron oxides coat soil particles and produce brownish, yellowish, or reddish colors, and manganese oxides produce black colors. When a soil becomes saturated with water and the dissolved oxygen is removed, anaerobic conditions develop. These conditions result in changes in the biochemical processes occurring in the soils and in the development of distinctive soil morphological characteristics (redoximorphic features). Reduced iron and manganese can move with the soil water to other parts of the soil or can be removed entirely from the soil by leaching. After the iron and manganese are removed, the leached area, or depletion zone, generally is grayish or whitish. If the reduced iron comes in contact with oxygen, it can reoxidize. The result is the formation of bright colored concentrations or accumulations. Repeated cycles of saturation and drying result in a mottled soil. Part of the soil is gray because of the loss of iron, and other parts are brown because the iron oxide has accumulated or has not been removed. The somewhat poorly drained Ipava soils are examples of soils in which this process has occurred. Iron may be leached from soils that remain saturated for long periods. Such soils are generally grayish or gleyed. The poorly drained Otter soils are examples.

Removals from the soil can occur as solid mineral and organic particles are lost through erosion of the soil surface. Such losses can be serious because the material lost generally is from the most productive part of the soil profile.

Removals can also occur as a result of leaching. The leaching of calcium carbonate from calcareous loess is an example. The loess was initially high in content of calcium carbonate. Water percolating through the loess dissolved the calcium carbonate and transported it deeper into the solum. Calcium carbonate is relatively soluble and is removed early in the formation of the soil. It is also a powerful flocculent, creating soil particles too large to be transported in suspension in the soil water. Removal of calcium carbonate facilitates the dispersion of clay particles. Translocation of the dispersed clay particles can then occur in percolating soil water.

Translocations are movements of material from one part of the soil to another. An example is the translocation of clay from the A or E horizon, the zone of eluviation or loss, to the B horizon, the zone of illuviation or gain. In Fayette soils, for example, a significant amount of clay has accumulated, forming an illuvial horizon called an argillic horizon. The argillic horizon developed on a relatively old, stable landscape. Water from rain and melting snow transferred fine clay from the A or E horizon downward to the B horizon, where the clay particles were deposited on the faces of peds and along pores.

Soils and Soil-Landscape Units

Soils are natural bodies that are distributed on the landscape in a predictable way in response to a systematic interaction of the five factors of soil

formation. The relationship of the landscape to the five factors results in a soil-landscape unit (Hudson, 1992). A soil-landscape unit is similar to a landform that has been modified by one or more of the soil-forming factors. Within a particular soil-landscape unit, the same kind of soil should form. Changes in the interaction of one or more of the five factors leads to a change in the soil-landscape unit, influencing the soil-forming processes and the soil that forms within this unit.

The following paragraphs describe the relationships and interactions that occur in some of the more common soil-landscape units in Macoupin County and the soils that have formed in these units.

Upland landscapes predominate in Macoupin County. These landscapes range from broad, relatively undissected drainage divides to dissected areas adjacent to streams and creeks. The predominant parent material in the more stable landscape positions is loess. Much of the calcium carbonate that was present when the loess was deposited has been leached to a sufficient depth to facilitate soil formation.

Low areas on the broad drainage divides are on stable-aggrading land surfaces that receive water as direct precipitation and as runoff from upslope areas. These conditions result in a wet soil microclimate. A seasonal high water table is at or near the surface much of the year, and at times the areas are ponded. Redoximorphic features associated with prolonged saturated conditions, such as a depleted soil matrix and iron and manganese accumulations along root channels and pores, occur throughout the soil profile.

The native vegetation in this landscape unit consisted of prairie grasses. Additions of large amounts of organic matter from the incorporation of plant residues by soil fauna and from decomposition of the extensive and deep root systems of the grasses resulted in a thick, dark surface horizon, called a mollic epipedon.

The saturated conditions and poor aeration influenced the rate at which organic matter decomposed. This rate is slower in soils that are saturated for prolonged periods, resulting in a thicker mollic epipedon and a higher content of organic matter than is characteristic of the better aerated positions upslope.

The stable landscape position and prolonged periods of saturation, which were interrupted by short periods when the soil was unsaturated, facilitated the formation of an argillic horizon. Virden soils are in the low areas.

Low-lying soils that have a high content of sodium commonly are closely intermingled with this soil-landscape unit. The sodium affects the dispersion of clay, accelerating clay illuviation and the formation of a natric horizon, which is a special type of argillic horizon. Piasa soils are an example.

Upslope from the low areas is a soil-landscape unit that consists of the summits of broad rises on drainage divides. These summits are stable-degrading land surfaces that receive water primarily through direct precipitation. The seasonal high water table and associated redoximorphic features occur at a lower depth in the soils of this unit than in the soils in the adjacent low areas. The redoximorphic features also indicate a fluctuating water table. The soil microclimate in the upper part of the profile alternates between periods when the soils are unsaturated and periods when they are saturated. A yellowish brown soil matrix indicates an oxidizing environment. Redoximorphic depletions along root channels and pores and iron and manganese accumulations within the matrix, however, indicate short periods of saturation. The lower part of the profile is saturated for extended periods and has a depleted soil matrix.

The native vegetation in this landscape unit consisted of prairie grasses. The soils of this unit are better aerated than the soils in low areas and tend to have a higher rate of organic-matter decomposition. Thus, they generally have a slightly thinner mollic epipedon and a lower content of organic matter than the soils in the low areas.

The fluctuating water table disrupts the soil fabric through wetting and drying cycles, which aid in the dispersal of clay, the movement of clay with percolating water, and the precipitation of clay as films on the faces of peds and as linings of pores. The result is the formation of an illuvial horizon called an argillic horizon. Ipava soils formed in areas of this soil-landscape unit.

The soil-landscape unit in the more dissected areas consists of the broad summits of interfluves. It has characteristics similar to those of the unit on the summits of broad rises on drainage divides. These dissected areas are stable-degrading land surfaces that receive water primarily through direct precipitation. Depth to the seasonal high water table and the associated redoximorphic features are nearly identical to those of the soil-landscape unit on the summits of broad rises.

The native vegetation in this soil-landscape unit is transitional between forest and prairie vegetation. The soils in this unit have a dark surface layer, but they do not have a mollic epipedon because the dark surface layer is not thick enough and does not have a sufficient accumulation of organic matter. This type of surface horizon is called an ochric epipedon.

A light colored, eluvial subsurface horizon (called an albic horizon) also has developed in the soils of this

unit. This horizon is typical of soils that formed under forest vegetation. In this horizon, much of the clay and free iron oxides have been removed and the color is determined primarily by the uncoated silt particles and sand grains. The translocation of clay from the eluvial horizon to the illuvial horizon results in the formation of an argillic horizon. Clarksdale soils are in areas of this soil-landscape unit.

Adjacent to this soil-landscape unit is a unit that also consists of the summits of interfluves but that is generally closer to the opposing interfluve drainageways and is on narrower summits. These summits are stable-degrading land surfaces that receive water through direct precipitation. Water that does not infiltrate the soil is lost through surface flow or runoff. Runoff increases the susceptibility to erosion.

The seasonal high water table and associated redoximorphic features occur at a much lower depth than those in the soils on the broad summits. The upper part of the soils formed in an oxidizing environment. The soil matrix is generally yellowish brown or brown and is free of depletions. The matrix in the lower part of the profile is yellowish brown and generally has depletions along pores and root channels, indicating short periods of saturation.

The native vegetation in areas of this soil-landscape unit is broadleaf deciduous forest. Under forest vegetation, most of the addition of organic matter occurs above ground. Organic matter is not incorporated as deep in the soil profile as it is in soils that formed under prairie vegetation, and the content decreases rapidly with increasing depth. Therefore, the dark surface layer, which is generally evident prior to tillage, is thinner than that in the Clarksdale soils. An ochric epipedon and an albic horizon have developed.

The more acid leaching environment that occurs under forest vegetation allows dispersed clay particles to be translocated to a greater depth than is characteristic in similar positions under prairie vegetation. The result is a well developed argillic horizon. Rozetta soils formed in areas of this soil-landscape unit.

Downslope from this soil-landscape unit is a unit that consists of the shoulders of hillslopes. These are metastable-degrading land surfaces that receive water through direct precipitation but also lose some of this water through runoff. This loss results in a drier microclimate. Runoff increases the susceptibility to erosion.

The seasonal high water table is below the depth of the developing soil profile. The entire profile developed in an oxidizing environment. The soil matrix is yellowish brown or brown and is free of depletions.

The native vegetation in this soil-landscape unit is forest. The soils have an ochric epipedon and albic and argillic horizons. Fayette soils formed in areas of this soil-landscape unit.

On the narrow flood plains between opposing side slopes is an active-aggrading landscape position that receives sediment during frequent episodes of flooding. The nearly continual deposition of sediment interrupts the soil-forming processes. The result is less time for soil formation to proceed and a less developed soil profile. A mollic epipedon is evident in the developing soil profile, but the fine stratification common to recent alluvial deposits remains and no diagnostic subsurface horizons occur. Lawson soils formed in areas of this soil-landscape unit.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 4 shows the classification of the soils in the county. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Mollisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udoll (*Ud*, meaning humid, plus *oll*, from Mollisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Argiudolls (*Argi*, meaning white clay, plus *udoll*, the suborder of the Mollisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the

great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Argiudolls.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, superactive, mesic Typic Argiudolls.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

Soil Series and Detailed Soil Map Units

In this section each soil series recognized in the survey area is described. Each series description is followed by detailed descriptions of the associated detailed soil map units.

Characteristics of the soil and the material in which it formed are identified for each soil series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is given under the headings "Use and Management of the Soils" and "Soil Properties."

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying layers, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying layers. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. The name of a soil phase

commonly indicates a feature that affects use or management. For example, Fayette silt loam, 5 to 10 percent slopes, eroded, is a phase of the Fayette series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Bunkum-Atlas silt loams, 5 to 10 percent slopes, eroded, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Dumps, mine, is an example.

Table 5 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas. The letters “OSD” following the heading “Typical Pedon” mean “Official Series Description.”

Assumption Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls

Typical Pedon (OSD)

Assumption silt loam, 2 to 5 percent slopes, at an elevation of 720 feet; Henry County, Illinois; 100 feet north and 300 feet east of the southwest corner of sec. 29, T. 15 N., R. 2 E.; USGS Andover topographic quadrangle; lat. 41 degrees 15 minutes 00 seconds N. and long. 90 degrees 17 minutes 57 seconds W., NAD 27:

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak medium granular structure; friable; many fine roots throughout; neutral; abrupt smooth boundary.

A—6 to 13 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; many fine roots throughout; slightly acid; clear smooth boundary.

AB—13 to 16 inches; very dark grayish brown (10YR 3/2) silt loam; mixed with some brown (10YR 4/3) material in the lower 2 inches; grayish brown (10YR 5/2) and brown (10YR 5/3) dry; weak medium subangular blocky structure; friable; many fine roots throughout; neutral; clear wavy boundary.

Bt1—16 to 26 inches; brown (10YR 4/3) silty clay loam; weak medium prismatic structure parting to moderate fine subangular blocky; firm; common fine roots between peds; many moderately thick brown (10YR 5/3) clay films on faces of peds; slightly acid; clear wavy boundary.

Bt2—26 to 35 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots between peds; many distinct brown (10YR 4/3) clay films on faces of peds; many medium distinct brownish yellow (10YR 6/6) masses of iron and common distinct grayish brown (2.5Y 5/2) iron depletions in the matrix; slightly acid; abrupt wavy boundary.

2Bt3—35 to 51 inches; yellowish brown (10YR 5/4) clay loam; weak medium subangular blocky structure; firm; common fine roots between peds; common distinct moderately thick dark yellowish brown (10YR 4/3) clay films on faces of peds; many coarse faint yellowish brown (10YR 5/8) masses of iron; common medium prominent light olive gray (5Y 6/2) iron depletions; slightly acid; clear wavy boundary.

2Bt4—51 to 60 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots between peds; many moderately thick brown (10YR 4/3) clay films on faces of peds; many medium distinct brownish yellow (10YR 6/6) masses of iron; slightly acid; clear wavy boundary.

2C—60 to 80 inches; brown (10YR 5/3) clay loam; massive; firm; common coarse prominent grayish brown (2.5Y 5/2) iron depletions and common coarse distinct brown (7.5YR 4/4) masses of iron in the matrix; slightly effervescent; slightly alkaline.

Range in Characteristics

Depth to base of diagnostic horizon: 48 to more than 70 inches
Thickness of the loess: 20 to 40 inches
Thickness of the mollic epipedon: 10 to 20 inches

Ap or A horizon(s):
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam or silty clay loam

Bt horizon(s):
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 6

Texture—silty clay loam or silt loam

2Btg or 2Bt horizon(s):
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—3 to 6
Chroma—1 to 6
Texture—clay loam, silty clay loam, clay, or silty clay

2C or 2Cg horizon(s):
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—3 to 6
Chroma—1 to 6
Texture—clay loam, silty clay loam, clay, or silty clay

Taxadjunct Feature

Assumption silt loam, 2 to 5 percent slopes, eroded, and Assumption silt loam, 5 to 10 percent slopes, eroded, have a dark surface soil that is thinner than is definitive for the series. This difference, however, does not significantly affect the use and management of the soils. The soils are classified as fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs.

259B—Assumption silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines (fig. 2)
Position on landform: Backslopes and shoulders

Map Unit Composition

Assumption and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table within a depth of 2 feet
- Soils that have a thinner dark surface layer
- Soils that have a lighter colored surface soil

Properties and Qualities of the Assumption Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow

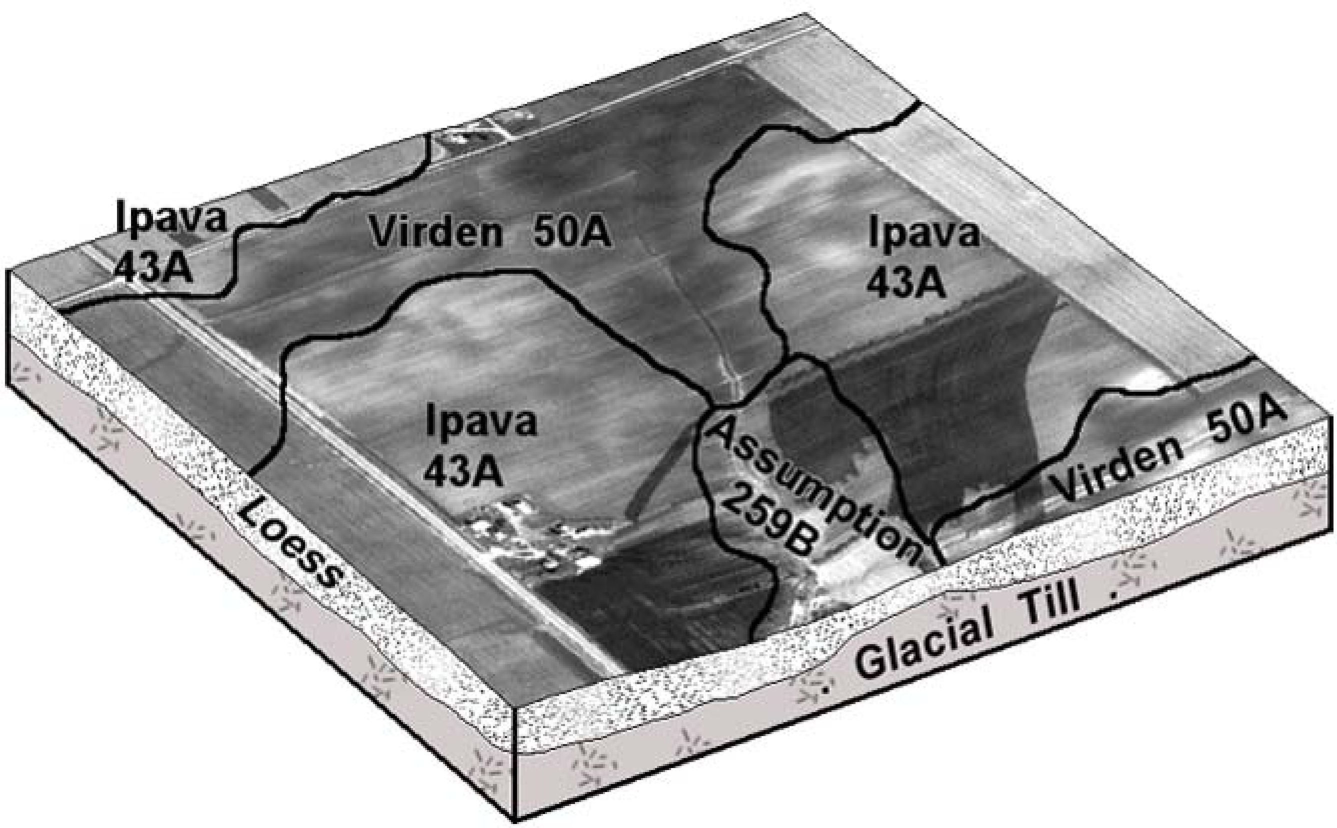


Figure 2.—Typical pattern of upland prairie soils that formed in loess or in loess and glacial till; in nearly level to gently sloping areas.

Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 4.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 2.0 to 3.5 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Assumption—2e
Prime farmland status: Assumption—prime farmland in all areas
Hydric soil status: Assumption—not hydric

259B2—Assumption silt loam, 2 to 5 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Shoulders and backslopes

Map Unit Composition

Assumption and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have a lighter colored surface layer
- Soils that have more clay in the surface layer
- Soils that have a seasonal high water table within a depth of 2 feet
- Soils that have a thicker dark surface soil

Properties and Qualities of the Assumption Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 2.0 to 3.5 feet below the surface
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Assumption—2e
Prime farmland status: Assumption—prime farmland in all areas
Hydric soil status: Assumption—not hydric

259C2—Assumption silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Backslopes

Map Unit Composition

Assumption and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have more clay in the surface layer
- Soils that have thicker dark surface soil
- Soils that have a seasonal high water table within a depth of 2 feet

Properties and Qualities of the Assumption Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High

Perched seasonal high water table: 2.0 to 3.5 feet below the surface
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Assumption—3e
Prime farmland status: Assumption—not prime farmland
Hydric soil status: Assumption—not hydric

Atlas Series

Taxonomic classification: Fine, smectitic, mesic Aeric Chromic Vertic Epiaqualfs

Typical Pedon (OSD)

Atlas silt loam, 5 to 10 percent slopes, eroded, at an elevation of 665 feet; Adams County, Illinois; 1,200 feet west and 50 feet south of the northeast corner of sec. 7, T. 1 N., R. 6 W.; USGS Coatsburg topographic quadrangle; lat. 40 degrees 05 minutes 40 seconds N. and long. 91 degrees 07 minutes 52 seconds W., NAD 27:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; common very fine and fine roots; common medium prominent strong brown (7.5YR 5/8) and few fine distinct yellowish brown (10YR 5/6) masses of iron throughout; few fine distinct black (2.5Y 2/1) masses of iron and manganese throughout; slightly acid; clear smooth boundary.
BE—7 to 13 inches; brown (10YR 5/3) silty clay loam, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure; friable; common fine roots; few fine distinct light brownish gray (10YR 6/2) clay depletions throughout; few fine distinct yellowish brown (10YR 5/6) masses of iron throughout; slightly acid; clear wavy boundary.
2Btg1—13 to 26 inches; dark gray (10YR 4/1) silty clay loam; moderate thick platy structure parting to weak fine subangular blocky; firm; common fine and few medium roots; common distinct very dark gray (10YR 3/1) organo-clay films on faces of peds and in pores; few fine prominent yellowish brown (10YR 5/6) masses of iron and few fine distinct white (10YR 8/1) masses of barite throughout; moderately acid; clear wavy boundary.
2Btg2—26 to 37 inches; 87 percent dark gray (10YR 4/1) and 10 percent gray (10YR 5/1) silty clay; weak medium prismatic structure; firm; common fine and medium roots; few distinct very dark gray (10YR 3/1) organo-clay films on faces of peds and in pores; common fine prominent yellowish brown (10YR 5/6) masses of iron and few fine distinct white (10YR 8/1) masses of barite throughout; 1 percent rounded gravel and 1 percent subangular limestone-cherty gravel; neutral; clear wavy boundary.
2Btg3—37 to 47 inches; gray (2.5Y 5/1) silty clay; weak coarse prismatic structure; firm; common fine roots; few distinct very dark gray (10YR 3/1) organo-clay films on faces of peds and in pores; few fine prominent yellowish brown (10YR 5/6) masses of iron, few fine faint gray (10YR 6/1) iron depletions, and few fine prominent white (10YR 8/1) masses of barite throughout; 1 percent angular gravel; neutral; clear wavy boundary.
2Btg4—47 to 61 inches; gray (2.5Y 5/1) clay loam; weak coarse prismatic structure; firm; common very fine roots; few distinct very dark gray (10YR 3/1) organo-clay films on faces of peds and in pores; few fine distinct black (2.5Y 2/1) masses of iron and manganese and few fine prominent white (10YR 8/1) barite crystals throughout; 1 percent limestone-cherty gravel and 1 percent rounded igneous-granite gravel; neutral; clear wavy boundary.
2BCg—61 to 80 inches; light brownish gray (2.5Y 6/2) clay loam; weak coarse prismatic structure; firm; few fine prominent yellowish brown (10YR 5/6) and common medium prominent brownish yellow (10YR 6/8) masses of iron throughout; 2 percent limestone-cherty gravel; neutral.

Range in Characteristics

Depth to base of diagnostic horizon: More than 42 inches
Thickness of the loess: Less than 20 inches

Ap or A horizon:
Hue—10YR
Value—2 to 5
Chroma—1 to 4
Texture—silt loam, loam, silty clay loam, or clay loam

E or BE horizon, where present:
Hue—10YR
Value—4 or 5
Chroma—1 to 4

Texture—silt loam or silty clay loam

Bt, Btg, or 2Btg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 3
Texture—clay loam, clay, silty clay loam, or silty clay
Content of rock fragments—0 to 5 percent

2Cg horizon, where present: :
Hue—10YR, 7.5YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 6
Texture—silty clay loam, clay loam, or loam
Content of rock fragments—2 to 15 percent

897C2—Bunkum-Atlas silt loams, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Bunkum—shoulders and backslopes; Atlas—backslopes

Map Unit Composition

Bunkum and similar soils: 55 percent
Atlas and similar soils: 35 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
• Soils that have a seasonal high water table at a depth of more than 2 feet
• Soils that have more clay in the surface layer

Dissimilar soils:
• The somewhat poorly drained Keomah and Marine soils on broad summits
• The well drained Rozetta soils on summits

Properties and Qualities of the Bunkum Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Properties and Qualities of the Atlas Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Very high
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Bunkum and Atlas—3e
Prime farmland status: Bunkum and Atlas—not prime farmland
Hydric soil status: Bunkum and Atlas—not hydric

897C3—Bunkum-Atlas silty clay loams, 5 to 10 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on landform: Bunkum—shoulders and backslopes; Atlas—backslopes

Map Unit Composition

Bunkum and similar soils: 55 percent
Atlas and similar soils: 35 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
• Soils that have a seasonal high water table at a depth of more than 2 feet
• Soils that have less clay in the surface layer

• Soils that have a darker surface layer

Dissimilar soils:
• The somewhat poorly drained Keomah and Marine on broad summits
• The well drained Rozetta soils on summits

Properties and Qualities of the Bunkum Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Very low

Properties and Qualities of the Atlas Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Very high
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Very low

Interpretive Groups

Land capability classification: Bunkum and Atlas—4e
Prime farmland status: Bunkum and Atlas—not prime farmland
Hydric soil status: Bunkum and Atlas—not hydric

897D2—Bunkum-Atlas silt loams, 10 to 18 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Bunkum—shoulders and backslopes; Atlas—backslopes

Map Unit Composition

Bunkum and similar soils: 55 percent
Atlas and similar soils: 35 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
• Soils that have a seasonal high water table at a depth of more than 2 feet
• Soils that have more clay in the surface layer

Dissimilar soils:
• The well drained Rozetta soils on summits
• The well drained Hickory soils on the lower backslopes
• The somewhat poorly drained Keomah and Marine soils on summits

Properties and Qualities of the Bunkum Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High

Susceptibility to wind erosion: Low

Properties and Qualities of the Atlas Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Very high
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Bunkum and Atlas—4e
Prime farmland status: Bunkum and Atlas—not prime farmland
Hydric soil status: Bunkum and Atlas—not hydric

897D3—Bunkum-Atlas silty clay loams, 10 to 18 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on landform: Bunkum—the upper and middle backslopes; Atlas—the middle and lower backslopes

Map Unit Composition

Bunkum and similar soils: 55 percent
Atlas and similar soils: 35 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils that have less clay in the surface layer

Dissimilar soils:
- The well drained Hickory soils on the lower backslopes
- The somewhat poorly drained Keomah and Marine soils on summits
- The well drained Rozetta soils on summits

Properties and Qualities of the Bunkum Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Very low

Properties and Qualities of the Atlas Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Very low

Interpretive Groups

Land capability classification: Bunkum and Atlas—6e

Prime farmland status: Bunkum and Atlas—not prime farmland
Hydric soil status: Bunkum and Atlas—not hydric

914C3—Atlas-Grantfork silty clay loams, 5 to 10 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on landform: Atlas—the lower backslopes; Grantfork—the upper and middle backslopes

Map Unit Composition

Atlas and similar soils: 55 percent
Grantfork and similar soils: 35 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils that have less clay in the surface layer
- Soils that have less sand in the upper part of the subsoil

Dissimilar soils:
- The well drained Hickory soils on the lower backslopes
- The somewhat poorly drained Keomah and Marine soils on broad summits
- The well drained Rozetta soils on summits

Properties and Qualities of the Atlas Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Very low

Properties and Qualities of the Grantfork Soil

Parent material: Loamy pedisediment over till or a paleosol that formed in till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Content of sodium: Moderate within a depth of 30 inches
Available water capacity: About 10.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Very low

Interpretive Groups

Land capability classification: Atlas—4e; Grantfork—6e
Prime farmland status: Atlas and Grantfork—not prime farmland
Hydric soil status: Atlas and Grantfork—not hydric

Biddle Series

Taxonomic classification: Fine, smectitic, mesic Aquic Argiudolls

Typical Pedon (OSD)

Biddle silt loam, in an area of Herrick-Biddle-Piasa silt loams, 0 to 2 percent slopes, at an elevation of about 475 feet; St. Clair County, Illinois; approximately 1,290 feet south and 1,555 feet east of the northwest corner of sec. 1, T. 2 S., R. 8 W.; USGS Freeburg, Illinois, topographic quadrangle; lat. 38 degrees 23 minutes 32 seconds N. and long. 89 degrees 56 minutes 10 seconds W., NAD 27:

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many very fine roots; few fine rounded black (10YR 2/1) nodules of iron and manganese with clear strong brown

(7.5YR 5/6) boundaries; about 23 percent clay; slightly acid; abrupt smooth boundary.

A—7 to 13 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine and medium granular structure; friable; many very fine roots; few fine rounded black (10YR 2/1) nodules of iron and manganese with clear strong brown (7.5YR 5/6) boundaries; about 22 percent clay; neutral; clear smooth boundary.

Eg—13 to 16 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium platy structure parting to weak fine granular; friable; common very fine roots; common distinct light gray (10YR 7/2 dry) clay depletions on faces of peds; few fine rounded black (10YR 2/1) nodules of iron and manganese with clear strong brown (7.5YR 5/6) boundaries; about 21 percent clay; neutral; clear smooth boundary.

Bt—16 to 25 inches; brown (10YR 4/3) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine faint grayish brown (10YR 5/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron in the matrix; common fine rounded black (7.5YR 2.5/1) and strong brown (7.5YR 5/6) masses of iron and manganese with sharp boundaries; about 38 percent clay; neutral; clear smooth boundary.

Btng1—25 to 36 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine prominent yellowish brown (10YR 5/6) masses of iron in the matrix; common fine and medium rounded black (7.5YR 2.5/1) masses of iron and manganese with clear strong brown (7.5YR 4/6) boundaries; about 37 percent clay; slightly alkaline; clear smooth boundary.

Btng2—36 to 46 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium subangular blocky structure; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine and medium prominent yellowish brown (10YR 5/6) masses of iron in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) masses of iron and manganese with clear strong brown (7.5YR 4/6) boundaries; about 34 percent clay; slightly alkaline; clear smooth boundary.

Btng3—46 to 55 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium subangular blocky structure; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) masses of iron and manganese with clear strong brown (7.5YR 4/6) boundaries; about 29 percent clay; slightly alkaline; gradual smooth boundary.

BCtng—55 to 62 inches; grayish brown (2.5Y 5/2) silt loam; weak coarse subangular blocky structure; friable; few distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; common fine and medium prominent brownish yellow (10YR 6/6) masses of iron in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) and dark brown (7.5YR 3/3) masses of iron and manganese with diffuse strong brown (7.5YR 4/6) boundaries; about 24 percent clay; slightly alkaline; gradual smooth boundary.

Cg1—62 to 76 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; few fine prominent yellowish brown (10YR 5/6) masses of iron in the matrix; few fine and medium irregular black (7.5YR 2.5/1) and dark brown (7.5YR 3/3) masses of iron and manganese with diffuse strong brown (7.5YR 4/6) boundaries; about 22 percent clay; slightly alkaline; clear smooth boundary.

2Cg2—76 to 80 inches; brown (7.5YR 5/2) silt loam; massive; friable; many fine and medium distinct brown (7.5YR 5/4) masses of iron in the matrix; common fine and medium irregular black (7.5YR 2.5/1) and dark brown (7.5YR 3/3) masses of iron and manganese with diffuse strong brown (7.5YR 4/6) boundaries; about 25 percent clay, 12 percent sand, and 1 percent pebbles; slightly alkaline.

Range in Characteristics

Depth to base of diagnostic horizon: 40 to 72 inches
Thickness of the mollic epipedon: 10 to 18 inches
Thickness of the loess: 60 to 80 inches

Ap and A horizon(s):
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2
Texture—silt loam

Eg horizon(s), where present:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—1 or 2
Texture—silt loam

Bt or Btng horizon(s):
Hue—10YR, 2.5Y, or 5Y

Value—3 to 5 in the upper part and 4 to 6 in the lower part
Chroma—1 to 4
Texture—silty clay loam or silty clay in the upper part and silty clay loam or silt loam in the lower part

Cg or 2Cg horizon(s):
Hue—7.5YR, 10YR, 2.5Y, 5Y, or neutral
Value—5 or 6
Chroma—0 to 2
Texture—commonly, silt loam; less commonly, loam, silty clay loam, or clay loam

894A—Herrick-Biddle-Piasa silt loams, 0 to 2 percent slopes

Setting

Landform: Ground moraines (fig. 3)
Position on landform: Herrick and Biddle—summits; Piasa—summits and toeslopes

Map Unit Composition

Herrick and similar soils: 45 percent
Biddle and similar soils: 35 percent
Piasa and similar soils: 20 percent

Minor Components

Similar soils:
- Soils that have a lighter colored surface soil
- Soils that have a thinner surface layer

Properties and Qualities of the Herrick Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 4.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Potential for frost action: High

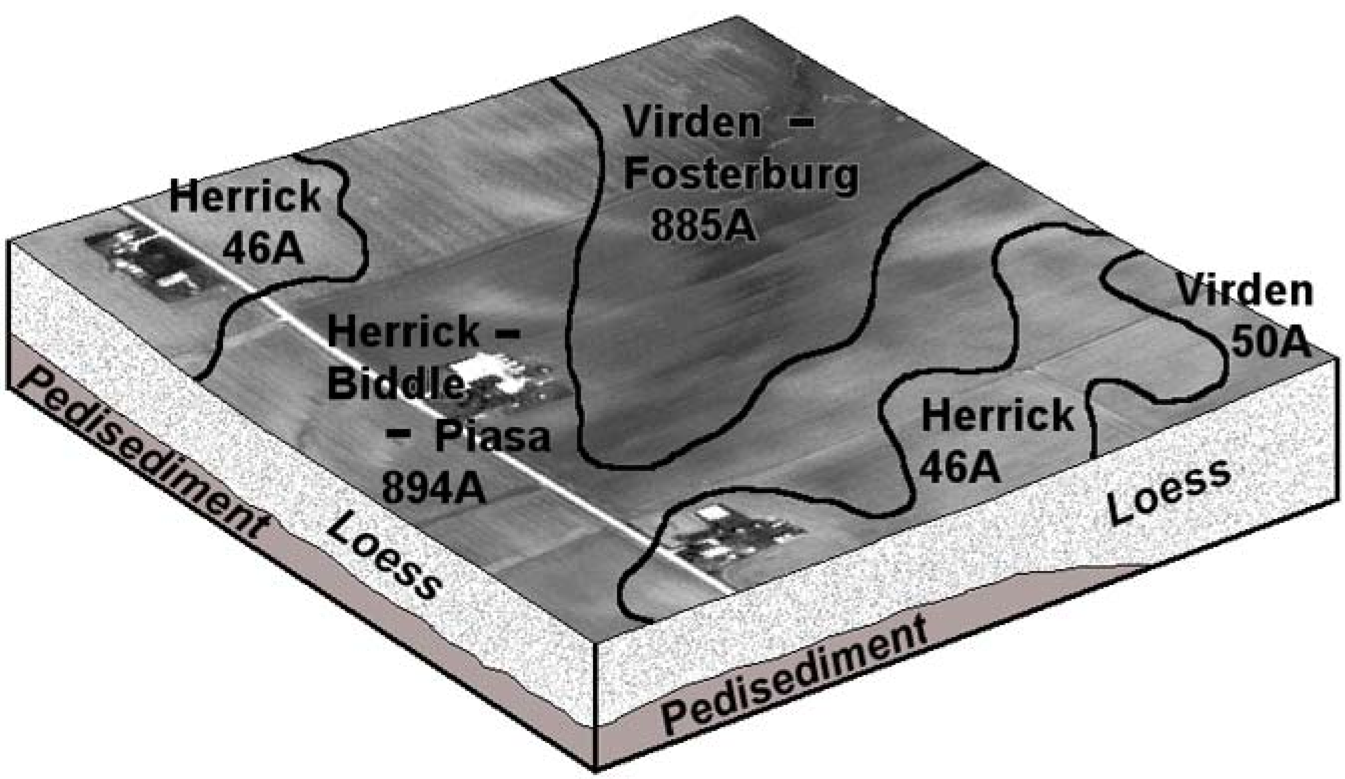


Figure 3.—Typical pattern of upland prairie soils that formed in loess or in loess and the underlying pedisediment; in nearly level areas.

Corrosivity: High for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Properties and Qualities of the Biddle Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Content of sodium: Moderate within a depth of 30 inches
Available water capacity: About 11.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Properties and Qualities of the Piasa Soil

Parent material: Loess over silty pedisediment
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Content of sodium: High within a depth of 30 inches
Available water capacity: About 7.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: High
Perched seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Herrick and Biddle—2w; Piasa—3w
Prime farmland status: Herrick, Biddle, and Piasa—not prime farmland
Hydric soil status: Herrick and Biddle—not hydric; Piasa—hydric

Buckhart Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls

Typical Pedon (OSD)

Buckhart silt loam, 2 to 5 percent slopes, at an elevation of about 603 feet; Christian County, Illinois; approximately 360 feet west and 540 feet north of the southeast corner of sec. 24, T. 14 N., R. 3 W.; USGS Grove City, Illinois, topographic quadrangle; lat. 39 degrees 33 minutes 53 seconds N. and long. 89 degrees 22 minutes 6 seconds W., NAD 27:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; few very fine roots; moderately acid; clear smooth boundary.
A—8 to 15 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure parting to moderate medium granular; friable; few very fine roots; moderately acid; clear smooth boundary.
Bt1—15 to 26 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure parting to moderate medium granular; friable; few very fine roots; many distinct brown (10YR 4/3) clay films on faces of peds and few distinct very dark grayish brown (10YR 3/2) organic coatings in root channels and/or pores; slightly acid; clear smooth boundary.
Bt2—26 to 37 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine irregular prominent strong brown (7.5YR 5/6) masses of iron and manganese along pores and few fine irregular prominent light brownish gray (2.5Y 6/2) iron depletions along pores; neutral; clear smooth boundary.

Bt3—37 to 52 inches; brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine irregular prominent strong brown (7.5YR 5/6) masses of iron and manganese along pores, few fine rounded prominent black (7.5YR 2/1) nodules of iron and manganese throughout, and common fine distinct irregular light brownish gray (2.5Y 6/2) iron depletions along pores; slightly acid; clear smooth boundary.

BCt—52 to 67 inches; light olive brown (2.5Y 5/3) silt loam; weak coarse subangular blocky structure; friable; few very fine roots; few distinct dark grayish brown (10YR 4/2) clay films in root channels and/or pores; common fine irregular prominent strong brown (7.5YR 5/6) masses of iron and manganese along pores, common fine irregular light brownish gray (2.5Y 6/2) iron depletions along pores, and few fine rounded prominent black (7.5YR 2/1) nodules of iron and manganese throughout; neutral; gradual smooth boundary.

C—67 to 80 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; common medium irregular distinct strong brown (7.5YR 5/6) masses of iron and manganese throughout, common medium irregular prominent light brownish gray (2.5Y 6/2) iron depletions throughout, and few fine rounded prominent black (7.5YR 2/1) nodules of iron and manganese throughout; neutral.

Range in Characteristics

Depth to base of diagnostic horizon: 40 to 55 inches
Thickness of the mollic epipedon: 10 to 20 inches

Ap or A horizon(s):
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam or silty clay loam

Bt or Btg horizon(s):
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silt loam or silty clay loam

BC, BCt, or BCg horizon(s):
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—2 to 4
Texture—silt loam or silty clay loam

C or Cg horizon(s):
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—2 to 6
Texture—typically, silt loam; silty clay loam in some pedons

705B—Buckhart silt loam, 2 to 5 percent slopes

Setting

Landform: Knolls on ground moraines
Position on landform: Summits and backslopes

Map Unit Composition

Buckhart and similar soils: 100 percent

Minor Components

Similar soils:
• Soils that have a thinner surface layer
• Soils that have carbonates within a depth of 40 inches
• Soils that have a seasonal high water table within a depth of 2 feet

Properties and Qualities of the Buckhart Soil

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 4.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 2.0 to 3.5 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Buckhart—2e
Prime farmland status: Buckhart—prime farmland in all areas
Hydric soil status: Buckhart—not hydric

Bunkum Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Hapludalfs

Typical Pedon

Bunkum silt loam, 5 to 10 percent slopes, eroded, at an elevation of 660 feet; Adams County, Illinois; 2,360 feet south and 2,440 feet west of the northeast corner of sec. 23, T. 2 S., R. 8 W.; USGS Quincy East, Illinois, topographic quadrangle; lat. 39 degrees 53 minutes 2 seconds N. and long. 91 degrees 17 minutes 30 seconds W., NAD 27:

Ap—0 to 4 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak thick platy structure parting to weak fine subangular blocky; friable; common fine and medium roots throughout; few fine distinct black (2.5Y 2/1) concretions of iron and manganese and few fine distinct light gray (10YR 7/2) clay depletions throughout; neutral; abrupt smooth boundary.

AE—4 to 7 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; weak medium subangular blocky structure; friable; common fine roots throughout; few fine distinct yellowish brown (10YR 5/6) masses of iron throughout; slightly acid; clear smooth boundary.

Bt1—7 to 10 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium subangular blocky structure; friable; few fine roots throughout; few distinct brown (10YR 4/3) clay films on faces of peds; few fine prominent black (2.5Y 2/1) concretions of iron and manganese throughout, few fine prominent black (2.5Y 2/1) masses of iron and manganese between peds, and few fine distinct light brownish gray (10YR 6/2) iron depletions between peds; moderately acid; clear smooth boundary.

Bt2—10 to 22 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; few fine roots throughout; common distinct brown (10YR 4/3) clay films on faces of peds; many medium distinct yellowish brown (10YR 5/6) masses of iron throughout, common fine prominent black (2.5Y 2/1) masses of iron and manganese throughout, and common medium distinct light brownish gray (10YR 6/2) iron depletions throughout; moderately acid; clear smooth boundary.

Bt3—22 to 34 inches; yellowish brown (10YR 5/4) silty clay loam; weak coarse prismatic structure; friable; few fine roots throughout; few distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; many medium faint brown (10YR 5/3) masses of iron throughout, common fine prominent black (2.5Y 2/1) masses of iron and manganese throughout, many medium distinct light brownish gray (10YR 6/2) iron depletions throughout, and common medium prominent yellowish brown (10YR 5/8) masses of iron throughout; strongly acid; gradual wavy boundary.

BCt—34 to 50 inches; yellowish brown (10YR 5/4) silt loam; weak coarse prismatic structure; friable; few fine roots throughout; very few faint dark yellowish brown (10YR 4/4) clay films in root channels and/or pores; common medium faint brown (10YR 5/3) masses of iron throughout, few fine prominent black (2.5Y 2/1) masses of iron and manganese between peds, few medium prominent yellowish brown (10YR 5/8) masses of iron throughout, and many medium distinct light brownish gray (10YR 6/2) iron depletions throughout; moderately acid; gradual wavy boundary.

2C1—50 to 65 inches; pale brown (10YR 6/3) silt loam; massive; friable; few fine roots between peds; common medium distinct yellowish brown (10YR 5/6) and common medium faint brown (10YR 5/3) masses of iron throughout, few fine prominent black (2.5Y 2/1) masses of iron and manganese throughout, and many medium faint light brownish gray (10YR 6/2) iron depletions throughout; moderately acid; clear wavy boundary.

2C2—65 to 78 inches; pale brown (10YR 6/3) silt loam; massive; friable; few fine roots between peds; many coarse faint yellowish brown (10YR 5/4) and few medium distinct yellowish brown (10YR 5/6) masses of iron throughout, few fine prominent black (2.5Y 2/1) masses of iron and manganese throughout, and many coarse faint light brownish gray (10YR 6/2) iron depletions throughout; moderately acid; gradual wavy boundary.

2C3—78 to 85 inches; yellowish brown (10YR 5/4) silt loam; massive; firm; common fine and medium prominent black (2.5Y 2/1) masses of iron and manganese throughout, few coarse distinct light brownish gray (10YR 6/2) iron depletions throughout, and common medium prominent yellowish brown (10YR 5/8) masses of iron throughout; moderately acid.

Range in Characteristics

Depth to base of diagnostic horizon: 24 to 60 inches
Thickness of the loess: 24 to 60 inches

Ap or A horizon(s):
Hue—10YR
Value—4 or 5

Chroma—2 to 4
Texture—silt loam or silty clay loam

Bt or Btg horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 4
Texture—silty clay loam or silt loam

2C or 2Cg horizon(s):
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 4
Texture—commonly, silt loam; less commonly, loam, silty clay loam, or clay loam

515B3—Bunkum silty clay loam, 2 to 5 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on landform: Shoulders

Map Unit Composition

Bunkum and similar soils: 100 percent

Minor Components

Similar soils:
• Soils that have less sand in the lower part of the subsoil and in the underlying material
• Soils that have less clay in the surface layer
• Soils that have a seasonal high water table at a depth of more than 2 feet

Properties and Qualities of the Bunkum Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Very low

Interpretive Groups

Land capability classification: Bunkum—3e
Prime farmland status: Bunkum—not prime farmland
Hydric soil status: Bunkum—not hydric

515C3—Bunkum silty clay loam, 5 to 10 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on landform: Backslopes and shoulders

Map Unit Composition

Bunkum and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
• Soils that have less sand in the lower part of the subsoil and in the underlying material
• Soils that have a seasonal high water table at a depth of more than 2 feet
• Soils that have less clay in the surface layer

Dissimilar soils:
• The somewhat poorly drained Marine soils on summits

Properties and Qualities of the Bunkum Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High

Susceptibility to wind erosion: Very low

Interpretive Groups

Land capability classification: Bunkum—4e
Prime farmland status: Bunkum—not prime farmland
Hydric soil status: Bunkum—not hydric

515D3—Bunkum silty clay loam, 10 to 18 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on landform: Backslopes

Map Unit Composition

Bunkum and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have less clay in the surface layer
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils that have less sand in the lower part of the subsoil and in the underlying material

Dissimilar soils:
- The moderately well drained Winfield soils on summits

Properties and Qualities of the Bunkum Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Very low

Interpretive Groups

Land capability classification: Bunkum—4e
Prime farmland status: Bunkum—not prime farmland
Hydric soil status: Bunkum—not hydric

897C2—Bunkum-Atlas silt loams, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Bunkum—shoulders and backslopes; Atlas—backslopes

Map Unit Composition

Bunkum and similar soils: 55 percent
Atlas and similar soils: 35 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils that have more clay in the surface layer

Dissimilar soils:
- The somewhat poorly drained Keomah and Marine soils on broad summits
- The well drained Rozetta soils on summits

Properties and Qualities of the Bunkum Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Properties and Qualities of the Atlas Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Very high
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Bunkum and Atlas—3e
Prime farmland status: Bunkum and Atlas—not prime farmland
Hydric soil status: Bunkum and Atlas—not hydric

897C3—Bunkum-Atlas silty clay loams, 5 to 10 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on landform: Bunkum—shoulders and backslopes; Atlas—backslopes

Map Unit Composition

Bunkum and similar soils: 55 percent
Atlas and similar soils: 35 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils that have less clay in the surface layer
- Soils that have a darker surface layer

Dissimilar soils:
- The somewhat poorly drained Keomah and Marine soils on broad summits
- The well drained Rozetta soils on summits

Properties and Qualities of the Bunkum Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Very low

Properties and Qualities of the Atlas Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Very high
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Very low

Interpretive Groups

Land capability classification: Bunkum and Atlas—4e
Prime farmland status: Bunkum and Atlas—not prime farmland
Hydric soil status: Bunkum and Atlas—not hydric

897D2—Bunkum-Atlas silt loams, 10 to 18 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Bunkum—shoulders and backslopes; Atlas—backslopes

Map Unit Composition

Bunkum and similar soils: 55 percent
Atlas and similar soils: 35 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils that have more clay in the surface layer

Dissimilar soils:
- The well drained Rozetta soils on summits
- The well drained Hickory soils on the lower backslopes
- The somewhat poorly drained Keomah and Marine soils on summits

Properties and Qualities of the Bunkum Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Properties and Qualities of the Atlas Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Very high
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Bunkum and Atlas—4e
Prime farmland status: Bunkum and Atlas—not prime farmland
Hydric soil status: Bunkum and Atlas—not hydric

897D3—Bunkum-Atlas silty clay loams, 10 to 18 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on landform: Bunkum—the upper and middle backslopes; Atlas—the middle and lower backslopes

Map Unit Composition

Bunkum and similar soils: 55 percent
Atlas and similar soils: 35 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils that have less clay in the surface layer

Dissimilar soils:
- The well drained Hickory soils on the lower backslopes
- The somewhat poorly drained Keomah and Marine soils on summits
- The well drained Rozetta soils on summits

Properties and Qualities of the Bunkum Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Very low

Properties and Qualities of the Atlas Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Very low

Interpretive Groups

Land capability classification: Bunkum and Atlas—6e
Prime farmland status: Bunkum and Atlas—not prime farmland
Hydric soil status: Bunkum and Atlas—not hydric

Burksville Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Epiaqualfs

Typical Pedon (OSD)

Burksville silt loam, 0 to 2 percent slopes, at an elevation of about 450 feet; Monroe County, Illinois; approximately 900 feet south and 1,650 feet east of the northwest corner of sec. 9, T. 3 S., R. 8 W.; USGS New Athens West, Illinois, topographic quadrangle; lat. 38 degrees 17 minutes 32 seconds N. and long. 89 degrees 59 minutes 35 seconds W., NAD 27:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; many very fine roots; common fine irregular strong brown (7.5YR 4/6) masses of iron in the matrix; few medium rounded black (7.5YR 2.5/1) nodules of iron and manganese; neutral; abrupt smooth boundary.
Eg—7 to 13 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak medium platy structure parting to weak fine granular; friable; common very fine roots; common fine distinct dark yellowish brown (10YR 4/4) and prominent strong brown (7.5YR 4/6) masses of iron in the matrix; few medium rounded black (7.5YR 2.5/1) nodules of iron and manganese; neutral; clear smooth boundary.
Btng1—13 to 22 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine and medium distinct dark yellowish brown (10YR 4/4) masses of iron and common fine and medium prominent strong brown (7.5YR 5/6) irregular masses of iron and manganese in the matrix; few medium rounded black (7.5YR 2.5/1) nodules of iron and manganese; slightly alkaline; clear smooth boundary.
Btng2—22 to 36 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium subangular blocky structure; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine distinct dark yellowish brown (10YR 4/4) and common fine and medium strong brown (7.5YR 5/6) masses of iron in the matrix; few medium rounded black (7.5YR 2.5/1) nodules of iron and manganese; few coarse irregular light gray (10YR 7/1) carbonate

concretions; moderately alkaline; gradual smooth boundary.

Btng3—36 to 54 inches; gray (2.5Y 5/1) silty clay loam; weak medium subangular blocky structure; firm; few very fine roots; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few medium prominent dark yellowish brown (10YR 4/4) and common fine and medium prominent strong brown (7.5YR 5/6) masses of iron in the matrix; slightly alkaline; clear smooth boundary.

Cg—54 to 80 inches; gray (2.5Y 6/1) silt loam; massive; friable; common medium prominent yellowish brown (10YR 5/6) masses of iron in the matrix; few medium irregular black (10YR 2/1) masses of iron and manganese; neutral.

Range in Characteristics

Depth to base of diagnostic horizon: 35 to 70 inches

Ap or A horizon(s):
Hue—10YR
Value—3 or 4 (6 or 7 dry)
Chroma—1 or 2
Texture—silt loam

Eg horizon:
Hue—10YR
Value—4 to 6 (6 to 8 dry)
Chroma—1 or 2
Texture—silt loam

Btng or BCg horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—dominantly, silty clay loam; silt loam in some pedons

Cg horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 7
Chroma—1 or 2
Texture—silt loam or silty clay loam

657A—Burksville silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on landform: Summits

Map Unit Composition

Burksville and similar soils: 85 percent
Dissimilar soils: 15 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that have a seasonal high water table at a depth of more than 1 foot

Dissimilar soils:
- The poorly drained Cowden and Pierron soils in landscape positions similar to those of the Burksville soil

Properties and Qualities of the Burksville Soil

Parent material: Loess
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Content of sodium: Moderate within a depth of 30 inches
Available water capacity: About 9.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Burksville—3w
Prime farmland status: Burksville—prime farmland where drained
Hydric soil status: Burksville—hydric

Camden Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Camden silt loam, 0 to 2 percent slopes, at an elevation of 560 feet; Bureau County, Illinois; 1,280 feet west and 1,740 feet south of the northeast corner of sec. 12, T. 15 N., R. 8 E.; USGS Wyanet topographic quadrangle; lat. 41 degrees 18 minutes 05 seconds N. and long. 89 degrees 30 minutes 52 seconds W., NAD 27:

Ap—0 to 7 inches; dark brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; few fine roots; slightly acid; abrupt smooth boundary.
E—7 to 12 inches; yellowish brown (10YR 5/4) silt loam; weak medium platy structure parting to weak fine subangular blocky; friable; few fine roots; neutral; clear smooth boundary.
Bt1—12 to 18 inches; yellowish brown (10YR 5/6) silty clay loam; moderate fine subangular blocky structure; friable; few fine roots; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; neutral; clear smooth boundary.
Bt2—18 to 26 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; moderately acid; clear smooth boundary.
2Bt3—26 to 34 inches; yellowish brown (10YR 5/6) clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; moderately acid; clear smooth boundary.
2Bt4—34 to 37 inches; strong brown (7.5YR 5/6) clay loam; weak medium subangular blocky structure; friable; few fine roots; many distinct brown (7.5YR 4/4) clay films on faces of peds; about 7 percent gravel; slightly acid; clear smooth boundary.
2Bt5—37 to 48 inches; strong brown (7.5YR 5/6) sandy clay loam; 1-inch strata of yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; common distinct brown (7.5YR 4/4) clay films on faces of peds; about 5 percent gravel; slightly acid; clear smooth boundary.
2Bt6—48 to 53 inches; strong brown (7.5YR 5/6) sandy loam; weak medium subangular blocky; friable; common distinct brown (7.5YR 4/4) clay films bridging sand grains; about 2 percent gravel; neutral; clear wavy boundary.
2C—53 to 60 inches; brown (7.5YR 4/4) sandy loam that has thin strata of loamy sand; single grain; loose; about 5 percent gravel; neutral.

Range in Characteristics

Thickness of the loess: 24 to 40 inches
Depth to base of diagnostic horizon: 30 to 65 inches

Ap horizon(s):
Hue—10YR
Value—3 to 5; value of 3 in horizons less than 6 inches thick
Chroma—2 or 3
Texture—silt loam

E horizon(s):
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—silt loam

Bt horizon(s):
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam or silt loam

2Bt or 2BC horizon(s):
Hue—10YR, 7.5YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam, clay loam, loam, sandy loam, sandy clay loam, or silt loam

2C horizon(s):
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 6
Texture—stratified sandy loam, loam, silt loam, loamy sand, sandy clay loam, or clay loam

134C2—Camden silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Stream terraces
Position on landform: The shoulders of risers

Map Unit Composition

Camden and similar soils: 100 percent

Minor Components

Similar soils:
• Soils that have more sand in the upper part of the subsoil
• Soils that have less sand in the lower part of the subsoil and in the underlying material

Properties and Qualities of the Camden Soil

Parent material: Loess over outwash
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.4 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.5 percent
Shrink-swell potential: Moderate
Seasonal high water table: At a depth of more than 6 feet
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Corrosivity: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Camden—3e
Prime farmland status: Camden—not prime farmland
Hydric soil status: Camden—not hydric

Clarksdale Series

Taxonomic classification: Fine, smectitic, mesic Udollic Endoaqualfs

Typical Pedon (OSD)

Clarksdale silt loam, 0 to 2 percent slopes, at an elevation of 650 feet; Adams County, Illinois; 800 feet south and 550 feet east of the northwest corner of sec. 16, T. 2 N., R. 7 W.; USGS Lorraine, Illinois, topographic quadrangle; lat. 40 degrees 9 minutes 55.1 seconds N. and long. 91 degrees 13 minutes 18 seconds W., NAD 27:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; common fine roots throughout; neutral; abrupt smooth boundary.

E—8 to 12 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium platy structure parting to weak very fine subangular blocky; friable; common very fine and fine roots throughout; many faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds and in pores; few fine prominent yellowish brown (10YR 5/6) masses of iron lining root channels and/or pores, few fine distinct black (2.5Y 2/1) masses of iron and manganese throughout, and many fine distinct light gray (10YR 7/1 and 7/2) clay depletions between peds; neutral; clear smooth boundary.

BE—12 to 16 inches; grayish brown (10YR 5/2) silt loam; moderate fine subangular blocky structure; friable; few fine roots throughout; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds and in pores; few fine prominent black (2.5Y 2/1) masses of iron and manganese throughout, common fine prominent yellowish brown (10YR 5/6) masses of iron throughout, and common fine faint light gray (10YR 7/1) clay depletions between peds; moderately acid; clear smooth boundary.

Bt1—16 to 23 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine and fine roots throughout; many prominent dark grayish brown (10YR 4/2) clay films on faces of peds and many prominent very dark gray (10YR 3/1) organo-clay films on faces of peds and in pores; common fine prominent black (2.5Y 2/1) masses of iron and manganese and common fine distinct yellowish brown (10YR 5/6) masses of iron throughout; moderately acid; clear smooth boundary.

Bt2—23 to 31 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots throughout; many faint grayish brown (10YR 5/2) clay films on faces of peds and many prominent very dark gray (10YR 3/1) organo-clay films on faces of peds and in pores; many fine distinct yellowish brown (10YR 5/6) and few fine prominent strong brown (7.5YR 5/6) masses of iron throughout, common fine prominent black (2.5Y 2/1) masses of iron and manganese throughout, and common fine faint light brownish gray (10YR 6/2) iron depletions throughout; moderately acid; gradual wavy boundary.

Btg1—31 to 47 inches; light brownish gray (2.5Y 6/2) silty clay loam; moderate coarse prismatic structure parting to moderate coarse subangular blocky; firm; few fine roots throughout; common prominent grayish brown (10YR 5/2) clay films on faces of peds and many prominent very dark gray (10YR 3/1) organo-clay films on faces of peds and in pores; many fine and medium prominent strong brown (7.5YR 5/6) masses of iron throughout, few fine prominent black (2.5Y 2/1) masses of iron and manganese throughout, and few fine faint light brownish gray (10YR 6/2) iron depletions lining root channels and/or pores; neutral; gradual wavy boundary.

Btg2—47 to 57 inches; light brownish gray (2.5Y 6/2) silt loam; weak coarse prismatic structure; firm; few fine roots throughout; common prominent dark grayish brown (10YR 4/2) clay films in root channels and/or pores; many medium prominent strong brown (7.5YR 5/6) masses of iron and few

fine prominent black (2.5Y 2/1) masses of iron and manganese throughout; neutral; clear wavy boundary.

BCg—57 to 67 inches; light brownish gray (2.5Y 6/2) silt loam; weak coarse subangular blocky structure; firm; common prominent dark grayish brown (10YR 4/2) clay films in root channels and/or pores; common medium prominent strong brown (7.5YR 5/6) and common medium prominent yellowish red (5YR 5/6) masses of iron throughout; neutral; clear wavy boundary.

Cg—67 to 80 inches; light brownish gray (10YR 6/2) silt loam; massive; friable; few distinct dark grayish brown (10YR 4/2) clay films in root channels and/or pores; many medium prominent yellowish red (5YR 4/6) and common medium prominent strong brown (7.5YR 5/6) masses of iron throughout; neutral.

Range in Characteristics

Depth to carbonates (where present): More than 40 inches
Depth to base of diagnostic horizon: 40 to 60 inches

Ap or A horizon(s):
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam

E or BE horizon(s):
Hue—10YR
Value—4 to 6
Chroma—1 or 2
Texture—silt loam

Bt or Btg horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 6
Texture—silty clay loam, silty clay, or silt loam

C or Cg horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 6
Texture—silt loam

257A—Clarksdale silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on landform: Summits

Map Unit Composition

Clarksdale and similar soils: 93 percent
Dissimilar soils: 7 percent

Minor Components

Similar soils:
- Soils that have a lighter colored surface layer
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils that have a thicker dark surface soil

Dissimilar soils:
- Virden soils in depressions

Properties and Qualities of the Clarksdale Soil

Parent material: Loess
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Clarksdale—1
Prime farmland status: Clarksdale—prime farmland where drained
Hydric soil status: Clarksdale—not hydric

257B—Clarksdale silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on landform: Shoulders and summits

Map Unit Composition

Clarksdale and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have more sand in the lower part of the subsoil and in the underlying material
- Soils that have a lighter colored surface layer
- Soils that have a thicker dark surface soil
- Soils that have a seasonal high water table at a depth of more than 2 feet

Dissimilar soils:
- The well drained Rozetta soils on summits

Properties and Qualities of the Clarksdale Soil

Parent material: Loess
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Accelerated erosion: The surface soil has been thinned by erosion.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Clarksdale—2e
Prime farmland status: Clarksdale—prime farmland in all areas
Hydric soil status: Clarksdale—not hydric

9257A—Clarksdale silt loam, terrace, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Position on landform: Summits

Map Unit Composition

Clarksdale and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that have a lighter colored surface layer
- Soils that have more sand in the lower part of the subsoil and in the underlying material
- Soils that have a thicker dark surface soil

Dissimilar soils:
- The well drained Camden and Martinsville soils on terrace risers
- The well drained Rozetta soils on narrow terrace summits
- The poorly drained Sawmill soils on flood plains

Properties and Qualities of the Clarksdale Soil

Parent material: Loess or other silty material
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Clarksdale—1
Prime farmland status: Clarksdale—prime farmland where drained
Hydric soil status: Clarksdale—not hydric

Coatsburg Series

Taxonomic classification: Fine, smectitic, mesic Vertic Argiaquolls

Typical Pedon (OSD)

Coatsburg silt loam, 5 to 10 percent slopes, eroded, at an elevation of 700 feet; Adams County, Illinois; 2,550 feet east and 2,400 feet north of the southwest corner of sec. 20, T. 2 N., R. 5 W.; USGS Augusta, Illinois,

topographic quadrangle; lat. 40 degrees 8 minutes 33 seconds N. and long. 90 degrees 59 minutes 58 seconds W., NAD 27:

Ap—0 to 6 inches; very dark gray (10YR 3/1) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; friable; many fine and medium roots; moderately acid; abrupt smooth boundary.

AB—6 to 10 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; weak medium subangular blocky structure parting to moderate fine subangular blocky; firm; common fine roots; many fine prominent light olive brown (2.5Y 5/4) and common fine prominent strong brown (7.5YR 5/6) masses of iron throughout and few fine prominent light gray (10YR 7/1) clay depletions on faces of peds; moderately acid; clear wavy boundary.

2Btg1—10 to 14 inches; dark grayish brown (10YR 4/2) silty clay loam; weak medium subangular blocky structure; firm; few fine roots; common distinct very dark gray (10YR 3/1) organo-clay films and common distinct dark gray (10YR 4/1) clay films on faces of peds; many fine distinct light olive brown (2.5Y 5/4) and common fine prominent strong brown (7.5YR 5/6) masses of iron throughout; moderately acid; clear wavy boundary.

2Btg2—14 to 19 inches; grayish brown (10YR 5/2) silty clay; weak coarse prismatic structure parting to weak medium subangular blocky; firm; few fine and medium roots; common distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; many fine prominent strong brown (7.5YR 5/6) masses of iron and common fine faint light brownish gray (10YR 6/2) iron depletions throughout; moderately acid; clear wavy boundary.

2Btg3—19 to 26 inches; grayish brown (10YR 5/2) silty clay loam; weak very coarse prismatic structure; firm; few fine roots; common distinct gray (10YR 5/1) clay films and few distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; many fine faint light brownish gray (10YR 6/2) iron depletions and common fine and medium prominent strong brown (7.5YR 5/6) masses of iron throughout; moderately acid; clear wavy boundary.

2Btg4—26 to 38 inches; grayish brown (10YR 5/2) silty clay loam; weak very coarse prismatic structure; firm; few very fine roots; few distinct gray (10YR 5/1) clay films on faces of peds and in pores; many fine and medium faint light brownish gray (10YR 6/2) iron depletions throughout, common fine and medium prominent black (2.5Y 2/1) masses of iron and manganese throughout, and common fine and medium prominent strong brown (7.5YR 5/6) masses of iron throughout; moderately acid; clear wavy boundary.

2Btg5—38 to 45 inches; light brownish gray (10YR 6/2) silty clay loam; moderate very coarse prismatic structure; firm; common distinct grayish brown (10YR 5/2) clay films on faces of peds and few distinct dark gray (10YR 4/1) clay films lining root channels and pores; common medium prominent brownish yellow (10YR 6/8) masses of iron throughout and common fine faint light gray (10YR 7/2) clay depletions on faces of peds; slightly acid; clear wavy boundary.

2Btg6—45 to 62 inches; gray (10YR 6/1) silty clay loam; moderate very coarse prismatic structure; firm; common distinct gray (10YR 5/1) clay films on faces of peds; many fine faint light gray (10YR 7/2) clay depletions on faces of peds, common medium and coarse prominent brownish yellow (10YR 6/6) masses of iron throughout, and few medium prominent black (2.5Y 2/1) masses of iron and manganese throughout; slightly acid; clear wavy boundary.

2Btg7—62 to 70 inches; light brownish gray (10YR 6/2) silty clay; weak very coarse prismatic structure parting to moderate medium subangular blocky; very firm; few distinct gray (10YR 6/1) clay films in root channels and/or pores; many medium prominent strong brown (7.5YR 5/6) masses of iron and common fine prominent black (2.5Y 2/1) masses of iron and manganese throughout; slightly acid; gradual wavy boundary.

2BCg—70 to 80 inches; gray (10YR 6/1) silty clay; weak very coarse prismatic structure; firm; many coarse prominent brownish yellow (10YR 6/6) masses of iron and common fine prominent black (2.5Y 2/1) masses of iron and manganese throughout; slightly acid.

Range in Characteristics

Thickness of the loess: Less than 20 inches
Thickness of the mollic epipedon: 10 to 20 inches
Depth to base of diagnostic horizon: 50 to 80 inches

Ap or A horizon(s):
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam

Btg or 2Btg horizon(s):
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—clay, clay loam, silty clay, or silty clay loam

2BCg, 2BC, 2Cg, or 2C horizon(s), where present:
Hue—10YR, 7.5YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 8
Texture—clay, clay loam, silty clay, silty clay loam, or loam

Taxadjunct Feature

The Coatsburg soils have a dark surface soil that is thinner than is definitive for the series. This difference, however, does not significantly affect the use and management of the soils. The soils are classified as fine, smectitic, mesic Vertic Epiaqualfs.

660C2—Coatsburg silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Backslopes

Map Unit Composition

Coatsburg and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have a thicker dark surface soil
- Soils that have more clay in the surface layer

Dissimilar soils:
- The moderately well drained Assumption soils on the higher backslopes

Properties and Qualities of the Coatsburg Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 5.0 percent
Shrink-swell potential: High
Perched seasonal high water table: At the surface to 1 foot below the surface
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Very high
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Coatsburg—3e
Prime farmland status: Coatsburg—not prime farmland
Hydric soil status: Coatsburg—hydric

Coffeen Series

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Fluvaquentic Hapludolls

Typical Pedon

Coffeen silt loam, 0 to 2 percent slopes, frequently flooded; Whiteside County, Illinois; 860 feet north and 1,740 feet west of the southeast corner of sec. 24, T. 20 N., R. 3 E.; USGS Erie topographic quadrangle; lat. 41 degrees 42 minutes 09 seconds N. and long. 90 degrees 05 minutes 56 seconds W., NAD 27:

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; neutral; abrupt smooth boundary.
A—9 to 17 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak medium and fine subangular blocky structure parting to moderate fine granular; friable; neutral; clear smooth boundary.
Bw1—17 to 24 inches; brown (10YR 4/3) silt loam; moderate medium subangular blocky structure; friable; few faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; common fine faint dark grayish brown (10YR 4/2) iron depletions and common fine faint dark yellowish brown (10YR 4/4) masses of iron in the matrix; neutral; clear smooth boundary.
Bw2—24 to 33 inches; brown (10YR 4/3) silt loam; moderate medium subangular blocky structure; friable; common fine faint grayish brown (10YR 5/2) iron depletions and common fine faint brown (10YR 5/3) masses of iron in the matrix; neutral; clear smooth boundary.
BCg—33 to 46 inches; grayish brown (2.5Y 5/2) silt loam; weak medium subangular blocky structure; friable; common fine prominent strong brown (7.5YR 4/6) and common fine distinct dark yellowish brown (10YR 4/4) masses of iron in the matrix; common fine prominent black (10YR 2/1) concretions of iron and manganese; neutral; gradual smooth boundary.

Cg—46 to 60 inches; grayish brown (2.5Y 5/2) and brown (10YR 5/3) silt loam; massive; friable; few fine prominent black (10YR 2/1) concretions of iron and manganese; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 18 inches
Depth to base of diagnostic horizon: 30 to 64 inches

Ap, AB, or A horizon(s):
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam

Bw, Bg, or BCg horizon(s):
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 or 3
Texture—silt loam or silt loam with thin strata of loam or sandy loam

C or Cg horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 8
Chroma—1 to 3
Texture—silt loam or silt loam with thin strata of loam, fine sandy loam, or sandy loam

3428A—Coffeen silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Coffeen and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that have a thicker surface soil
- Soils that have a lighter colored surface layer
- Soils that have more clay in the subsoil

Dissimilar soils:
- The well drained Landes soils on the slightly higher parts of the flood plains
- The well drained Terril soils on footslopes above the flood plains
- The poorly drained Sawmill soils in depressions and swales

Properties and Qualities of the Coffeen Soil

Parent material: Alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 3.0 percent
Shrink-swell potential: Low
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: Frequent, November-June
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Coffeen—3w
Prime farmland status: Coffeen—prime farmland where protected from flooding or not frequently flooded during the growing season
Hydric soil status: Coffeen—not hydric

Coulterville Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs

Typical Pedon (OSD)

Coulterville silt loam, in an area of Bunkum-Coulterville silt loams, 2 to 5 percent slopes, eroded, at an elevation of about 467 feet; Monroe County, Illinois; approximately 1,320 feet west and 2,100 feet north of the southeast corner of sec. 5, T. 3 S., R. 8 W.; USGS Paderborn, Illinois, topographic quadrangle; lat. 38 degrees 18 minutes 2 seconds N. and long. 90 degrees 0 minutes 11 seconds W., NAD 27:

Ap—0 to 7 inches; mixed dark grayish brown (10YR 4/2) and brown (10YR 4/3) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; common very fine and few fine roots; few fine prominent yellowish red (5YR 5/8) masses of iron and common fine distinct rounded very dark gray (7.5YR 3/1) nodules of iron and manganese; 2 percent exchangeable sodium; moderately acid; abrupt smooth boundary.
Btn—7 to 11 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; friable; common very fine and few fine roots; many distinct

dark grayish brown (10YR 4/2) clay films on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions and common medium prominent strong brown (7.5YR 4/6) and few fine prominent yellowish red (5YR 5/8) masses of iron in the matrix; few fine distinct rounded very dark gray (7.5YR 3/1) nodules of iron and manganese; 5 percent exchangeable sodium; neutral; clear smooth boundary.

Btng1—11 to 15 inches; gray (5Y 6/1) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; common very fine and few fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium prominent strong brown (7.5YR 4/6) and few fine prominent yellowish red (5YR 5/8) masses of iron in the matrix; common fine prominent rounded very dark gray (7.5YR 3/1) nodules of iron and manganese; 9 percent exchangeable sodium; neutral; clear smooth boundary.

Btng2—15 to 23 inches; gray (5Y 6/1) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few very fine roots; common faint light gray (10YR 7/1 dry) clay depletions on faces of peds, common distinct grayish brown (10YR 5/2) clay films on faces of peds, and few distinct very dark grayish brown (10YR 3/2) organo-clay films in root channels; common medium prominent brown (7.5YR 4/4) and common fine and medium prominent strong brown (7.5YR 4/6) masses of iron in the matrix; common fine prominent rounded black (10YR 2/1) nodules of iron and manganese; very dark grayish brown (10YR 3/2) vertical krotovinas; 12 percent exchangeable sodium; slightly effervescent throughout; moderately alkaline; clear smooth boundary.

Btkng1—23 to 28 inches; gray (5Y 5/1) silt loam; moderate medium subangular blocky structure; friable; few very fine roots; common faint light gray (10YR 7/1 dry) clay depletions on faces of peds, few faint grayish brown (10YR 5/2) clay films on faces of peds, and few distinct very dark grayish brown (10YR 3/2) organo-clay films in root channels; common medium prominent strong brown (7.5YR 4/6) masses and nodules of iron in the matrix; few medium prominent irregular white (10YR 8/1) carbonate nodules; 14 percent exchangeable sodium; slightly effervescent; moderately alkaline; clear smooth boundary.

Btkng2—28 to 33 inches; light olive gray (5Y 6/2) silt loam; weak medium subangular blocky structure; friable; few very fine roots; common faint light gray (10YR 7/1 dry) clay depletions on faces of peds, few faint grayish brown (10YR 5/2) clay films on faces of peds, and few prominent black (10YR 2/1) iron-manganese stains on faces of peds; common medium prominent strong brown (7.5YR 4/6) masses of iron in the matrix; common fine and medium prominent irregular dark brown (7.5YR 3/3) masses of iron and manganese and few medium prominent irregular white (10YR 8/1) carbonate nodules; 10 percent exchangeable sodium; slightly effervescent; moderately alkaline; clear smooth boundary.

Btkn—33 to 39 inches; olive (5Y 5/3) silt loam; weak medium subangular blocky structure; friable; few faint grayish brown (10YR 5/2) clay films on faces of peds; common medium distinct light brownish gray (2.5Y 6/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron in the matrix; many medium prominent irregular dark brown (7.5YR 3/2) masses of iron and manganese and few medium prominent irregular white (10YR 8/1) carbonate nodules; 8 percent exchangeable sodium; slightly effervescent; moderately alkaline; clear smooth boundary.

BCkn—39 to 56 inches; brown (10YR 5/3) silt loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; few prominent black (10YR 2/1) manganese stains on vertical faces of peds and in root channels; common prominent white (10YR 8/1) carbonate coatings on vertical faces of peds; common medium faint light brownish gray (2.5Y 6/2) iron depletions and common medium prominent strong brown (7.5YR 4/6) masses of iron in the matrix; common fine and medium distinct irregular dark brown (7.5YR 3/2) masses of iron and manganese; 6 percent exchangeable sodium; slightly effervescent; moderately alkaline; clear smooth boundary.

Ckn—56 to 68 inches; brown (10YR 5/3) silt loam; massive; friable; few prominent white (10YR 8/1) carbonate coatings along faces of cleavage planes; common medium prominent strong brown (7.5YR 4/6) and common medium distinct yellowish brown (10YR 5/6) masses of iron in the matrix; common fine and medium distinct rounded black (7.5YR 2.5/1) nodules of iron and manganese; 5 percent exchangeable sodium; slightly effervescent; moderately alkaline; gradual smooth boundary.

C—68 to 80 inches; brown (7.5YR 5/4) silt loam; massive; friable; common medium prominent light

brownish gray (2.5Y 6/2) iron depletions and common fine distinct strong brown (7.5YR 4/6) masses of iron in the matrix; few fine faint rounded dark brown (7.5YR 3/3) masses of iron and manganese; slightly alkaline.

Range in Characteristics

Depth to base of diagnostic horizon: 35 to 70 inches
Thickness of the loess: More than 50 inches

Ap or A horizon:
Hue—10YR
Value—3 or 4 (5 or 6 dry)
Chroma—2 or 3
Texture—silt loam; silty clay loam in some eroded pedons

E horizon, where present:
Hue—10YR
Value—4 to 6 (6 to 8 dry)
Chroma—2 or 3
Texture—silt loam

Btn, Btng, Btkng, Btkn, or BCkn horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 4
Texture—typically, silty clay loam or silt loam; silty clay in some pedons

Ckn or 2C horizon:
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 7
Chroma—1 to 4
Texture—silt loam, loam, clay loam, or silty clay loam

880B2—Coulterville-Darmstadt silt loams, 2 to 5 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Summits and backslopes

Map Unit Composition

Coulterville and similar soils: 45 percent
Darmstadt and similar soils: 45 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have more sand in the subsoil

Dissimilar soils:
- The somewhat poorly drained Herrick and Marine soils on broad summits
- The somewhat poorly drained Oconee soils in landscape positions similar to those of the Coulterville and Darmstadt soils

Properties and Qualities of the Coulterville Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Content of sodium: Moderate within a depth of 30 inches
Available water capacity: About 9.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Properties and Qualities of the Darmstadt Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Content of sodium: High within a depth of 30 inches
Available water capacity: About 8.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High

Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Coulterville—2e; Darmstadt—3e
Prime farmland status: Coulterville and Darmstadt—not prime farmland
Hydric soil status: Coulterville and Darmstadt—not hydric

882B—Oconee-Coulterville-Darmstadt silt loams, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on landform: Oconee—summits; Coulterville and Darmstadt—summits and backslopes

Map Unit Composition

Oconee and similar soils: 35 percent
Coulterville and similar soils: 30 percent
Darmstadt and similar soils: 20 percent
Dissimilar soils: 15 percent

Minor Components

Similar soils:
• Soils that have more sand in the subsoil

Dissimilar soils:
• The somewhat poorly drained Herrick and Marine soils on broad summits
• The poorly drained Burksville soils on summits and shoulders

Properties and Qualities of the Oconee Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Properties and Qualities of the Coulterville Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Content of sodium: Moderate within a depth of 30 inches
Available water capacity: About 9.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Erosion: The surface layer is less eroded than the surface layer in the typical pedon of the series description.
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Properties and Qualities of the Darmstadt Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Content of sodium: High within a depth of 30 inches
Available water capacity: About 8.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Oconee and Coulterville—2e; Darmstadt—3e
Prime farmland status: Oconee, Coulterville, and Darmstadt—not prime farmland
Hydric soil status: Oconee, Coulterville, and Darmstadt—not hydric

Cowden Series

Taxonomic classification: Fine, smectitic, mesic Mollic Albaqualfs

Typical Pedon (OSD)

Cowden silt loam, 0 to 2 percent slopes, at an elevation of about 665 feet; Montgomery County, Illinois; approximately 1,980 feet west and 30 feet north of the southeast corner of sec. 8, T. 9 N., R. 4 W.; USGS Butler, Illinois, topographic quadrangle; lat. 39 degrees 13 minutes 55 seconds N. and long. 89 degrees 33 minutes 18 seconds W., NAD 27:

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak fine granular structure; friable; common very fine and few fine roots; few fine continuous tubular pores; few fine irregular dark brown (10YR 3/3) masses of iron and manganese; moderately acid; abrupt smooth boundary.

Eg1—8 to 14 inches; dark gray (10YR 4/1) silt loam, gray (10YR 6/1) dry; weak medium platy structure parting to weak fine subangular blocky; friable; few very fine roots; common fine and medium tubular and vesicular pores; many distinct very dark gray (10YR 3/1) organic coatings on faces of peds and filling pores; few fine irregular dark brown (10YR 3/3) masses of iron and manganese; moderately acid; clear smooth boundary.

Eg2—14 to 19 inches; gray (10YR 5/1) silt loam, light gray (10YR 7/1) dry; weak medium platy structure parting to weak fine subangular blocky; friable; few very fine roots; common fine and medium continuous tubular pores; common fine faint grayish brown (10YR 5/2) masses of iron in the matrix; common fine irregular dark brown (10YR 3/3) masses of iron and manganese; strongly acid; abrupt smooth boundary.

Btg1—19 to 26 inches; grayish brown (10YR 5/2) silty clay loam; moderate fine and medium prismatic structure parting to moderate medium angular and subangular blocky; firm; common very fine roots; few fine continuous tubular pores; common distinct light gray (10YR 7/1 dry) clay depletions on faces of peds in the upper 2 inches; many prominent very dark gray (10YR 3/1) organo-clay films on faces of peds; few fine distinct yellowish brown (10YR 5/4 and 5/6) masses of iron in the matrix; common fine and medium irregular black (10YR 2/1) nodules of iron and manganese with sharp boundaries; strongly acid; clear smooth boundary.

Btg2—26 to 43 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium and coarse angular blocky; firm; few very fine roots; many prominent very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; many medium distinct yellowish brown (10YR 5/6) masses of iron in the matrix; common fine and medium irregular black (10YR 2/1) and dark reddish brown (5YR 3/4) nodules of iron and manganese with sharp boundaries; moderately acid; gradual smooth boundary.

Btg3—43 to 50 inches; light brownish gray (10YR 6/2) silty clay loam; weak coarse angular blocky structure; firm; few very fine roots; few fine vesicular and tubular pores; few prominent black (10YR 2/1) organo-clay films lining root channels and pores; common distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; common coarse prominent yellowish brown (10YR 5/8) masses of iron in the matrix; few medium and coarse irregular black (10YR 2/1) nodules of iron and manganese with clear strong brown (7.5YR 5/6) boundaries; slightly acid; gradual smooth boundary.

BCtg—50 to 58 inches; gray (10YR 6/1) silt loam; weak medium and coarse angular blocky structure; friable; few very fine roots; few fine vesicular and tubular pores; few prominent very dark gray (10YR 3/1) organo-clay films lining root channels and pores; few distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; common coarse prominent strong brown (7.5YR 5/8) masses of iron in the matrix; few fine and medium irregular black (10YR 2/1) nodules of iron and manganese with clear strong brown (7.5YR 4/6) boundaries; neutral; clear smooth boundary.

Cg—58 to 69 inches; grayish brown (10YR 5/2) silt loam; massive; friable; few fine and medium vesicular and tubular pores; few prominent very dark gray (10YR 3/1) organo-clay films lining root

channels and pores; many medium and coarse prominent strong brown (7.5YR 5/6) masses of iron in the matrix; common fine and medium irregular black (5YR 2.5/1) nodules of iron and manganese with diffuse yellowish red (5YR 5/6) boundaries; about 8 percent sand; neutral; clear smooth boundary.

2Btgb—69 to 80 inches; grayish brown (10YR 5/2) silty clay loam; moderate fine and medium prismatic structure parting to weak medium angular blocky; firm; common medium and coarse vesicular and tubular pores; few prominent very dark gray (10YR 3/1) organo-clay films lining root channels and pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine and medium distinct yellowish brown (10YR 5/6) masses of iron in the matrix; few medium and coarse irregular black (5YR 2.5/1) and yellowish red (5YR 4/6) nodules of iron and manganese with clear boundaries; about 15 percent sand and 2 percent pebbles; neutral.

Range in Characteristics

Depth to base of diagnostic horizon: 40 to 65 inches
Thickness of the loess: More than 55 inches
Profile feature: A B/E horizon in some pedons

Ap or A horizon(s):
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam

Eg horizon(s):
Hue—10YR
Value—4 to 6
Chroma—1 or 2
Texture—silt loam

Btg horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—typically, silty clay loam; silty clay or silt loam in some pedons

Cg horizon and BCtg or BCg horizon(s):
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silt loam or silty clay loam

2Cg, 2Ab, 2Btg, or 2Bb horizon(s):
Hue—7.5YR, 10YR, 2.5Y, 5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—silt loam, loam, silty clay loam, or clay loam

112A—Cowden silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on landform: Toeslopes

Map Unit Composition

Cowden and similar soils: 94 percent
Dissimilar soils: 6 percent

Minor Components

Similar soils:
- Soils that have a thicker, darker surface soil
- Soils that have a seasonal high water table at a depth of more than 1 foot

Dissimilar soils:
- The poorly drained Piasa soils in depressions and on toeslopes

Properties and Qualities of the Cowden Soil

Parent material: Loess over silty pedisediment
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Cowden—3w
Prime farmland status: Cowden—prime farmland where drained
Hydric soil status: Cowden—hydric

993A—Cowden-Piasa silt loams, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on landform: Toeslopes

Map Unit Composition

Cowden and similar soils: 55 percent
Piasa and similar soils: 45 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 1 foot
- Soils that have a lighter colored surface layer
- Soils that have a thicker dark surface layer

Properties and Qualities of the Cowden Soil

Parent material: Loess over silty pedisediment
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Properties and Qualities of the Piasa Soil

Parent material: Loess over silty pedisediment
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Content of sodium: High within a depth of 30 inches
Available water capacity: About 7.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: High
Perched seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Cowden and Piasa—3w
Prime farmland status: Cowden and Piasa—not prime farmland
Hydric soil status: Cowden and Piasa—hydric

Darmstadt Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Albic Natraqualfs

Typical Pedon (OSD)

Darmstadt silt loam, in an area of Oconee-Coulterville-Darmstadt silt loams, 2 to 5 percent slopes, at an elevation of about 470 feet; St. Clair County, Illinois; approximately 1,202 feet west and 84 feet south of the northeast corner of sec. 9, T. 2 S., R. 8 W.; USGS Freeburg, Illinois, topographic quadrangle; lat. 38 degrees 22 minutes 52 seconds N. and long. 89 degrees 59 minutes 7 seconds W., NAD 27:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak thick platy structure parting to weak very fine granular; friable; many very fine roots; few fine faint rounded black (10YR 2/1) nodules of iron and manganese; 1 percent exchangeable sodium; neutral; abrupt smooth boundary.

E—8 to 11 inches; light brownish gray (10YR 6/2) and grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak thick platy structure parting to weak fine subangular blocky; friable; common very fine roots; many fine and medium distinct rounded black (10YR 2/1) nodules of iron and manganese; 4 percent exchangeable sodium; neutral; abrupt smooth boundary.

Btn1—11 to 16 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate fine and medium angular blocky; firm; many very fine roots; few faint grayish brown (10YR 5/2) clay films on faces of peds; common medium faint grayish brown (10YR 5/2) iron

depletions and common medium prominent yellowish brown (10YR 5/8) and few fine prominent strong brown (7.5YR 5/6) masses of iron in the matrix; few medium distinct rounded black (7.5YR 2.5/1) nodules of iron and manganese with clear strong brown (7.5YR 4/6) boundaries; 7 percent exchangeable sodium; very strongly acid; gradual smooth boundary.

Btn2—16 to 21 inches; pale brown (10YR 6/3) silty clay loam; moderate medium prismatic structure parting to strong medium angular blocky; firm; common very fine roots; common distinct gray (10YR 5/1) clay films on faces of peds; many fine faint grayish brown (10YR 5/2) iron depletions and many fine distinct brownish yellow (10YR 6/6) and many fine prominent yellowish brown (10YR 5/8) masses of iron in the matrix; few fine prominent irregular strong brown (7.5YR 5/6) masses of iron and manganese and few medium prominent rounded black (7.5YR 2.5/1) nodules of iron and manganese with clear strong brown (7.5YR 4/6) boundaries; 12 percent exchangeable sodium; moderately acid; gradual smooth boundary.

Btn3—21 to 27 inches; pale brown (10YR 6/3) and light brownish gray (10YR 6/2) silty clay loam; moderate coarse prismatic structure; firm; few very fine roots; few distinct gray (10YR 5/1) clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/8) masses of iron in the matrix; few medium prominent irregular very dark brown (7.5YR 2.5/2) masses of iron and manganese with diffuse strong brown (7.5YR 5/6) boundaries; 17 percent exchangeable sodium; slightly acid; gradual smooth boundary.

Btng1—27 to 35 inches; light brownish gray (10YR 6/2) silty clay loam; weak coarse prismatic structure; firm; few very fine roots; few distinct gray (10YR 5/1) clay films on vertical faces of peds and few distinct black (10YR 2/1) and very dark gray (10YR 3/1) organo-clay films lining root channels and pores; few medium faint dark gray (10YR 4/1) iron depletions and few medium distinct dark yellowish brown (10YR 4/4) and light yellowish brown (10YR 6/4) masses of iron in the matrix; common coarse prominent irregular black (7.5YR 2.5/1) masses of iron and manganese with diffuse strong brown (7.5YR 4/6) boundaries; 20 percent exchangeable sodium; neutral; clear smooth boundary.

Btng2—35 to 39 inches; light gray (10YR 7/1) silty clay loam; weak coarse prismatic structure; friable; few very fine roots; few distinct gray (10YR 5/1) clay films on vertical faces of peds; few coarse prominent yellowish brown (10YR 5/6) and common coarse prominent strong brown (7.5YR 5/6) masses of iron in the matrix; few medium prominent irregular black (7.5YR 2.5/1) masses of iron and manganese; 25 percent exchangeable sodium; slightly alkaline; abrupt smooth boundary.

Cng1—39 to 44 inches; light gray (10YR 7/1) silt loam; massive; friable; few very fine roots; many coarse prominent yellowish brown (10YR 5/6 and 5/8) and common coarse and medium prominent strong brown (7.5YR 5/6) masses of iron in the matrix; common medium and coarse prominent irregular black (7.5YR 2.5/1) masses of iron and manganese; few medium faint irregular white (10YR 8/1) carbonate nodules; 25 percent exchangeable sodium; slightly effervescent; slightly alkaline; abrupt smooth boundary.

Cng2—44 to 62 inches; light gray (10YR 7/1) silt loam; massive; friable; few distinct very dark grayish brown (10YR 3/2) organo-clay films lining root channels and pores; many coarse prominent yellowish brown (10YR 5/6 and 5/8) and many medium and coarse prominent strong brown (7.5YR 5/6) masses of iron in the matrix; few medium prominent irregular black (7.5YR 2.5/1) masses of iron and manganese; about 25 percent exchangeable sodium; slightly effervescent; moderately alkaline; gradual smooth boundary.

Cng3—62 to 80 inches; light gray (10YR 7/1) silt loam; massive; friable; few distinct very dark grayish brown (10YR 3/2) organo-clay films lining root channels; many coarse prominent yellowish brown (10YR 5/6) and common medium prominent strong brown (7.5YR 5/6) masses of iron in the matrix; few fine prominent irregular black (7.5YR 2.5/1) masses of iron and manganese; moderately alkaline.

Range in Characteristics

Depth to base of diagnostic horizon: Typically, 35 to 50 inches, but ranging from 30 to 60 inches
Thickness of the loess: More than 45 inches

Ap or A horizon(s):
Hue—10YR
Value—3 to 5 (5 or 6 dry)
Chroma—2 or 3
Texture—silt loam or silty clay loam

E horizon:
Hue—10YR
Value—5 or 6 (6 to 8 dry)
Chroma—2
Texture—silt loam

Btn or Btng horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 to 6
Texture—typically, silty clay loam; silty clay or silt loam in some pedons

Cg, 2Cg, or Cng horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—5 to 7
Chroma—1 or 2
Texture—silt loam, loam, clay loam, or silty clay loam

880B2—Coulterville-Darmstadt silt loams, 2 to 5 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Summits and backslopes

Map Unit Composition

Coulterville and similar soils: 45 percent
Darmstadt and similar soils: 45 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have more sand in the subsoil

Dissimilar soils:
- The somewhat poorly drained Herrick and Marine soils on broad summits
- The somewhat poorly drained Oconee soils in landscape positions similar to those of the Coulterville and Darmstadt soils

Properties and Qualities of the Coulterville Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Content of sodium: Moderate within a depth of 30 inches
Available water capacity: About 9.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Properties and Qualities of the Darmstadt Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Content of sodium: High within a depth of 30 inches
Available water capacity: About 8.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Coulterville—2e; Darmstadt—3e
Prime farmland status: Coulterville and Darmstadt—not prime farmland
Hydric soil status: Coulterville and Darmstadt—not hydric

882B—Oconee-Coulterville-Darmstadt silt loams, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on landform: Oconee—summits; Coulterville and Darmstadt—summits and backslopes

Map Unit Composition

Oconee and similar soils: 35 percent
Coulterville and similar soils: 30 percent
Darmstadt and similar soils: 20 percent
Dissimilar soils: 15 percent

Minor Components

Similar soils:
- Soils that have more sand in the subsoil

Dissimilar soils:
- The somewhat poorly drained Herrick and Marine soils on broad summits
- The poorly drained Burksville soils on summits and shoulders

Properties and Qualities of the Oconee Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Properties and Qualities of the Coulterville Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Content of sodium: Moderate within a depth of 30 inches
Available water capacity: About 9.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Erosion: The surface layer is less eroded than the surface layer in the typical pedon of the series description.
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Properties and Qualities of the Darmstadt Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Content of sodium: High within a depth of 30 inches
Available water capacity: About 8.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Oconee and Coulterville—2e; Darmstadt—3e
Prime farmland status: Oconee, Coulterville, and Darmstadt—not prime farmland
Hydric soil status: Oconee, Coulterville, and Darmstadt—not hydric

536—Dumps, mine

Setting

This map unit is in nearly level to very steep areas where refuse from the washing and separating of coal has accumulated.

Map Unit Composition

Dumps, mine: 95 percent
Dussimilar components: 5 percent

Minor Components

Dissimilar components:
- The well drained, loamy Orthents along the edge of the refuse areas
- Undisturbed soils along the edge of the refuse areas
- Areas of water less than 3 acres in size

Interpretive Groups

Land capability classification: Dumps—none assigned

Prime farmland status: Dumps—not prime farmland
Hydric soil status: Dumps—not hydric

Elco Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon (OSD)

Elco silt loam, 10 to 18 percent slopes, at an elevation of about 575 feet; Sangamon County, Illinois; 2,520 feet east and 2,200 feet south of the northwest corner of sec. 35, T. 15 N., R. 4 W.; USGS New City, Illinois, topographic quadrangle; lat. 39 degrees 42 minutes 30 seconds N. and long. 89 degrees 30 minutes 28 seconds W., NAD 27:

Ap—0 to 4 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; strong very fine granular structure; friable; many roots throughout; slightly acid; clear smooth boundary.

E—4 to 12 inches; brown (10YR 4/3) silt loam; weak thin platy structure parting to moderate very fine granular; friable; many distinct light gray (10YR 7/1 dry) clay depletions on faces of peds; few faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds and in pores; few distinct yellowish brown (10YR 5/4) flecks and fragments of subsoil material; slightly acid; clear smooth boundary.

BE—12 to 15 inches; yellowish brown (10YR 5/4) silt loam; moderate very fine and fine subangular blocky structure; friable; few faint dark brown (10YR 3/3) organo-clay films and very few faint dark grayish brown (10YR 4/2) clay films on faces of peds; few distinct light gray (10YR 7/1 dry) clay depletions on faces of peds; few fine black (5YR 2.5/1) concretions of iron and manganese throughout; slightly acid; clear smooth boundary.

Bt—15 to 26 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; many distinct brown (10YR 4/3) clay films on faces of peds; few distinct light gray (10YR 7/1 dry) silt coatings on faces of peds; few fine distinct yellowish brown (10YR 5/6) masses of iron in the matrix; few fine distinct grayish brown (10YR 5/2) iron depletions along micropores; few fine black (5YR 2.5/1) concretions of iron and manganese throughout; slightly acid; clear smooth boundary.

2Btg1—26 to 39 inches; grayish brown (2.5Y 5/2) and yellowish brown (10YR 5/6) silty clay loam; moderate medium and coarse subangular and angular blocky structure; firm; common distinct olive brown (2.5Y 4/4) and brown (10YR 4/3) clay films on faces of peds; few fine prominent strong brown (7.5YR 5/8) masses of iron in the matrix; common very fine black (5YR 2.5/1) concretions of iron and manganese throughout; slightly acid; gradual smooth boundary.

3Btg2—39 to 55 inches; grayish brown (2.5Y 5/2) and yellowish brown (10YR 5/6) silty clay; weak medium prismatic structure parting to moderate coarse subangular and angular blocky; firm; many distinct gray (5Y 5/1) clay films on faces of peds; few fine prominent strong brown (7.5YR 5/8) masses of iron in the matrix; few fine black (5YR 2.5/1) concretions of iron and manganese throughout; slightly acid; clear smooth boundary.

3Btg3—55 to 70 inches; grayish brown (2.5Y 5/2) silty clay; moderate fine and medium subangular and angular blocky structure; friable; common distinct gray (5Y 5/1) clay films on faces of peds and in pores; common fine prominent strong brown (7.5YR 5/6) masses of iron in the matrix; few fine black (5YR 2.5/1) concretions of iron and manganese throughout; slightly acid; clear smooth boundary.

3Btg4—70 to 80 inches; gray (5Y 5/1) silty clay; moderate coarse subangular blocky structure; firm; common distinct greenish gray (5GY 5/1) clay films on faces of peds; few distinct black (10YR 2/1) organic coatings in root channels and pores; many fine strong brown (7.5YR 4/6) masses of iron in the matrix; few fine black (5YR 2.5/1) concretions of iron and manganese throughout; slightly alkaline.

Range in Characteristics

Depth to base of diagnostic horizon: More than 48 inches
Thickness of the loess: 20 to 40 inches

Ap or A horizon(s):
Hue—10YR
Value—3 or 4
Chroma—1 or 2
Texture—silt loam or silty clay loam

E horizon(s), where present:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam

BE horizon(s):
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam or silty clay loam

Bt horizon(s):
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—2 to 6
Texture—silty clay loam or silt loam

2Btg horizon or, where present, 2Bt horizon(s):
Hue—5Y, 2.5Y, 10YR, or 7.5YR
Value—3 to 6
Chroma—1 to 6
Texture—loam, clay loam, silty clay loam, or silt loam

3Btg horizon or, where present, 3Bt horizon(s):
Hue—5Y, 2.5Y, 10YR, or 7.5YR
Value—3 to 6
Chroma—1 to 6
Texture—loam, clay loam, silty clay loam, silty clay, or clay

119B2—Elco silt loam, 2 to 5 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Backslopes and shoulders

Map Unit Composition

Elco and similar soils: 100 percent

Minor Components

Similar soils:
• Soils that have less clay in the lower part of the subsoil
• Soils that have more clay in the surface layer
• Soils that have more clay in the upper part of the subsoil and have a seasonal high water table within a depth of 2 feet
• Soils that have a darker surface layer

Properties and Qualities of the Elco Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 2.0 to 3.5 feet below the surface
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Elco—2e
Prime farmland status: Elco—prime farmland in all areas
Hydric soil status: Elco—not hydric

119C2—Elco silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Backslopes and shoulders

Map Unit Composition

Elco and similar soils: 97 percent
Dissimilar soils: 3 percent

Minor Components

Similar soils:
• Soils that have less sand in the lower part of the subsoil
• Soils that have more clay in the surface layer
• Soils that have a seasonal high water table within a depth of 2 feet

Dissimilar soils:
• The well drained Hickory soils on the lower backslopes

Properties and Qualities of the Elco Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: High

Perched seasonal high water table: 2.0 to 3.5 feet below the surface
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Elco—3e
Prime farmland status: Elco—not prime farmland
Hydric soil status: Elco—not hydric

119C3—Elco silty clay loam, 5 to 10 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on landform: Shoulders and backslopes

Map Unit Composition

Elco and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
• Soils that have less sand in the lower part of the subsoil
• Soils that have less clay in the surface layer
• Soils that have a seasonal high water table within a depth of 2 feet

Dissimilar soils:
• The well drained Hickory soils on the lower backslopes

Properties and Qualities of the Elco Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 2.0 to 3.5 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Very low

Interpretive Groups

Land capability classification: Elco—4e
Prime farmland status: Elco—not prime farmland
Hydric soil status: Elco—not hydric

119D2—Elco silt loam, 10 to 18 percent slopes, eroded

Setting

Landform: Ground moraines (fig. 4)
Position on landform: Shoulders and backslopes

Map Unit Composition

Elco and similar soils: 94 percent
Dissimilar soils: 6 percent

Minor Components

Similar soils:
• Soils that have more clay in the surface layer
• Soils that have a seasonal high water table within a depth of 2 feet
• Soils that have more clay in the upper part of the subsoil

Dissimilar soils:
• The well drained Hickory soils on the lower backslopes
• The well drained Rozetta soils on the shoulders of summits

Properties and Qualities of the Elco Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.2 inches to a depth of 60 inches

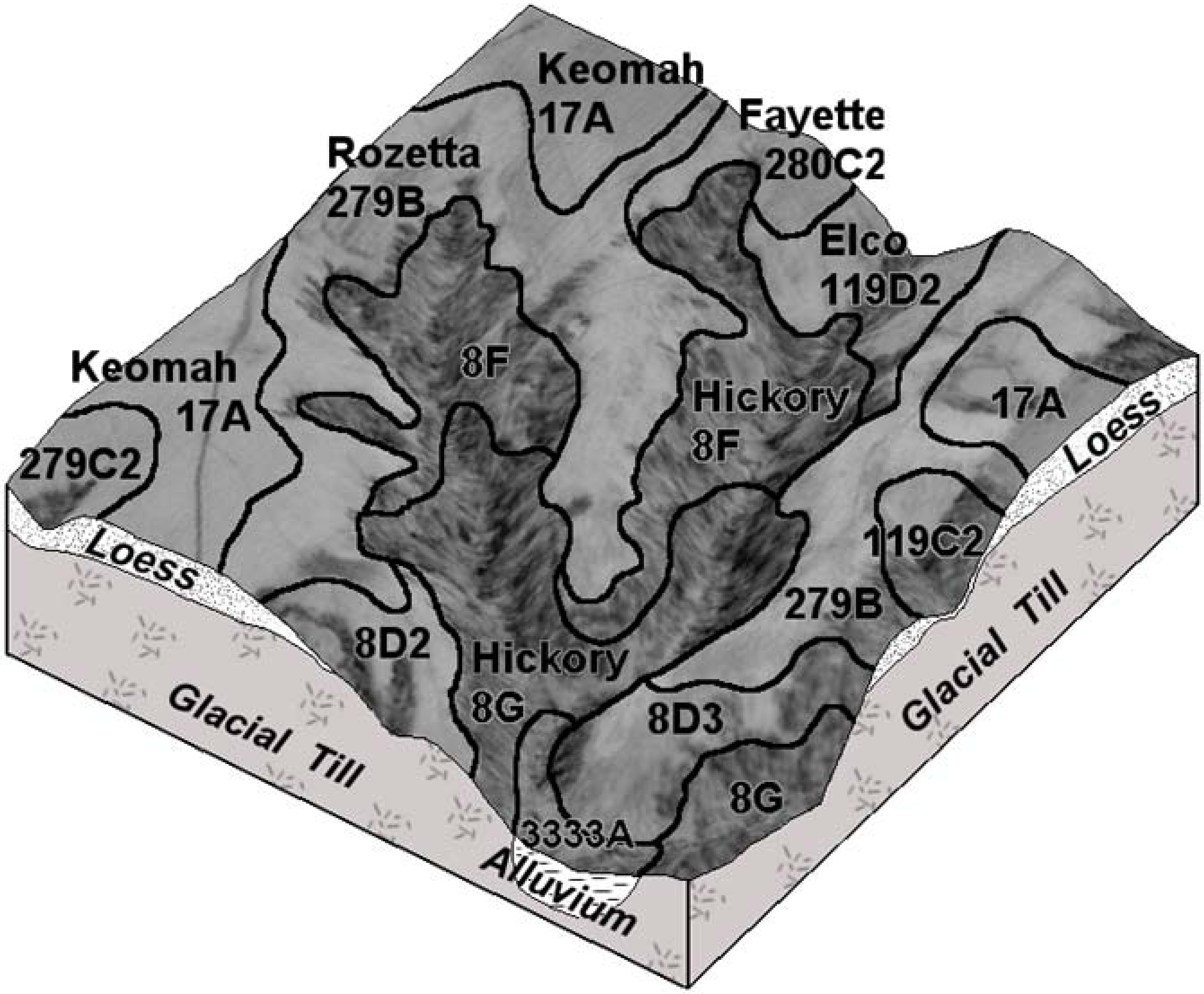


Figure 4.—Typical pattern of upland forest soils that formed in loess or in loess and glacial till; in nearly level to very steep areas.

Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 2.0 to 3.5 feet below the surface
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Elco—3e
Prime farmland status: Elco—not prime farmland
Hydric soil status: Elco—not hydric

119D3—Elco silty clay loam, 10 to 18 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on landform: Shoulders and backslopes

Map Unit Composition

Elco and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that have less clay in the surface layer
- Soils that have a seasonal high water table within a depth of 2 feet
- Soils that have more clay in the upper part of the subsoil

Dissimilar soils:
- The well drained Hickory soils on the lower backslopes
- The well drained Rozetta soils on the shoulders of summits

Properties and Qualities of the Elco Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 2.0 to 3.5 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Very low

Interpretive Groups

Land capability classification: Elco—4e
Prime farmland status: Elco—not prime farmland
Hydric soil status: Elco—not hydric

Fayette Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Fayette silt loam, 10 to 18 percent slopes, eroded, at an elevation of 685 feet; Warren County, Illinois; 2,100 feet north and 1,700 feet west of the southeast corner of sec. 31, T. 12 N., R. 3 W.; USGS Rozetta topographic quadrangle; lat. 40 degrees 59 minutes 13 seconds N. and long. 90 degrees 46 minutes 18 seconds W., NAD 27:

Ap—0 to 5 inches; mixed dark grayish brown (10YR 4/2) and yellowish brown (10YR 5/4) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; common fine roots throughout; moderately acid; clear smooth boundary.

EB—5 to 9 inches; mixed brown (10YR 5/3) and yellowish brown (10YR 5/4) silt loam; weak medium platy structure parting to moderate fine subangular blocky; friable; common fine roots between peds; few faint dark yellowish brown (10YR 4/4) clay films on faces of peds; moderately acid; clear smooth boundary.

Bt1—9 to 13 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine and medium subangular blocky structure; friable; few fine roots between peds; common faint brown (10YR 4/3) clay films on faces of peds; moderately acid; clear smooth boundary.

Bt2—13 to 27 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots between peds; common faint dark yellowish brown (10YR 4/4) clay films on faces of peds; moderately acid; gradual smooth boundary.

Bt3—27 to 38 inches; yellowish brown (10YR 5/4) silty clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; friable; common faint dark yellowish brown (10YR 4/4) clay films on faces of peds; common distinct light gray (10YR 7/2 dry) clay depletions on faces of peds; few distinct dark brown (7.5YR 3/2) masses of iron and manganese on faces of peds; moderately acid; gradual wavy boundary.

BC—38 to 55 inches; yellowish brown (10YR 5/4) silt loam; moderate medium and coarse subangular blocky structure; friable; common faint dark yellowish brown (10YR 4/4) clay films on faces of peds; common distinct light gray (10YR 7/2 dry) clay depletions on faces of peds; few distinct dark brown (7.5YR 3/2) masses of iron and manganese on faces of peds; moderately acid; clear wavy boundary.

C—55 to 60 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; few distinct dark brown (7.5YR 3/2) concretions of iron and manganese in the matrix; moderately acid.

Range in Characteristics

Depth to base of diagnostic horizon: 36 to 70 inches

Ap or A horizon(s):
Hue—10YR
Value—2 to 4
Chroma—1 to 3
Texture—silt loam or silty clay loam

E horizon(s) where present:
Hue—10YR
Value—4 or 5
Chroma—1 to 4
Texture—silt loam

Bt horizon(s):
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam or silt loam

C horizon(s):
Hue—10YR
Value—4 or 5
Chroma—4 to 6
Texture—silt loam

280B—Fayette silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on landform: Summits and shoulders

Map Unit Composition

Fayette and similar soils: 97 percent
Dissimilar soils: 3 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table within a depth of 6 feet
- Soils that have more sand in the lower part of the subsoil and in the underlying material

Dissimilar soils:
- The well drained Hickory soils on backslopes

Properties and Qualities of the Fayette Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Seasonal high water table: At a depth of more than 6 feet
Flooding: None
Erosion: The surface layer is less eroded than the surface layer in the typical pedon of the series description.
Potential for frost action: High
Corrosivity: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Fayette—2e
Prime farmland status: Fayette—prime farmland in all areas
Hydric soil status: Fayette—not hydric

280C2—Fayette silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines (fig. 4)
Position on landform: Shoulders and backslopes

Map Unit Composition

Fayette and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table within a depth of 6 feet
- Soils that have more clay in the subsoil
- Soils that have more sand in the lower part of the subsoil and in the underlying material
- Soils that have more clay in the surface layer

Dissimilar soils:
- The well drained Hickory soils on the lower backslopes

Properties and Qualities of the Fayette Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches

Available water capacity: About 11.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Seasonal high water table: At a depth of more than 6 feet
Flooding: None
Potential for frost action: High
Corrosivity: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Fayette—3e
Prime farmland status: Fayette—not prime farmland
Hydric soil status: Fayette—not hydric

Fishhook Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Hapludalfs

Typical Pedon (OSD)

Fishhook silt loam, 5 to 10 percent slopes, eroded, at an elevation of 725 feet; Brown County, Illinois; 1,800 feet south and 360 feet east of the northwest corner of sec. 34, T. 1 N., R. 4 W.; USGS Mt. Sterling, Illinois, topographic quadrangle; lat. 40 degrees 1 minute 36 seconds N. and long. 91 degrees 6 minutes 18 seconds W., NAD 27:

Ap—0 to 6 inches; dark yellowish brown (10YR 4/4) silt loam, light yellowish brown (10YR 6/4) dry; moderate medium subangular blocky structure; friable; few very fine and fine roots throughout; few fine prominent black (2.5Y 2/1) masses of iron and manganese throughout; moderately acid; abrupt smooth boundary.

Bt1—6 to 17 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots throughout; few distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine prominent black (2.5Y 2/1) masses of iron and manganese throughout; common medium distinct yellowish brown (10YR 5/6) masses of iron in the matrix; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; strongly acid; clear wavy boundary.

Bt2—17 to 22 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots throughout; few distinct brown (10YR 4/3) clay films lining root channels and pores; common fine prominent black (2.5Y 2/1) masses of iron and manganese throughout; common medium distinct yellowish brown (10YR 5/6) masses of iron in the matrix; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; strongly acid; clear wavy boundary.

Bt3—22 to 27 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine prismatic structure parting to moderate medium subangular blocky; friable; few very fine roots throughout; common distinct dark yellowish brown (10YR 4/4) and few distinct brown (10YR 5/3) clay films on faces of peds; few fine prominent black (2.5Y 2/1) masses of iron and manganese throughout; common fine distinct yellowish brown (10YR 5/6) masses of iron in the matrix; few fine distinct light brownish gray (10YR 6/2) iron depletions along faces of peds; strongly acid; clear wavy boundary.

2Bt4—27 to 35 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; friable; few distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine prominent black (2.5Y 2/1) masses of iron and manganese throughout; few fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; few fine rock fragments; strongly acid; clear wavy boundary.

2Bt5—35 to 46 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; friable; few distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few prominent light gray (10YR 7/2) silt coatings on faces of peds; few fine prominent black (2.5Y 2/1) masses of iron and manganese throughout; few fine distinct irregular light brownish gray (10YR 6/2) iron depletions in the matrix; few very fine and fine rock fragments; moderately acid; clear wavy boundary.

2Bt6—46 to 58 inches; yellowish brown (10YR 5/4) clay loam; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; firm; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine and medium prominent rounded black (2.5Y 2/1) masses of iron and manganese throughout; common fine distinct yellowish brown (10YR 5/6) masses of iron in the matrix; common fine and

medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; few fine and medium rock fragments; slightly acid; clear wavy boundary.

2Bt7—58 to 68 inches; brown (10YR 5/3) clay loam; moderate medium prismatic structure parting to moderate fine subangular blocky; firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine prominent black (2.5Y 2/1) masses of iron and manganese throughout; common medium distinct yellowish brown (10YR 5/6) masses of iron in the matrix; common fine faint light brownish gray (10YR 6/2) iron depletions in the matrix; few very fine and fine rock fragments; slightly acid; gradual wavy boundary.

2Btg—68 to 82 inches; grayish brown (10YR 5/2) clay; moderate medium prismatic structure parting to moderate fine subangular blocky; firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium prominent black (2.5Y 2/1) concretions of iron and manganese throughout; common fine and medium distinct yellowish brown (10YR 5/6) masses of iron in the matrix; few very fine and fine rock fragments; slightly acid.

Range in Characteristics

Depth to base of diagnostic horizon: More than 50 inches
Thickness of the loess: 20 to 40 inches

A or Ap horizon(s):
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture—silt loam or silty clay loam

Bt or Btg horizon(s):
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silty clay loam

2Bt or 2Btg horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—2 to 7
Chroma—1 to 4
Texture—clay loam, clay, silty clay, silty clay loam, or loam
Content of rock fragments—1 to 15 percent

2BC, 2BCg, or 2Cg horizon(s),where present:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—clay loam or loam
Content of rock fragments—1 to 15 percent

6B2—Fishhook silt loam, 2 to 5 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Shoulders and backslopes

Map Unit Composition

Fishhook and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have less clay in the lower part of the subsoil and in the underlying material
- Soils that have a darker surface layer
- Soils that have more clay in the surface layer

Dissimilar soils:
- The well drained Rozetta soils on summits

Properties and Qualities of the Fishhook Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Fishhook—2e
Prime farmland status: Fishhook—not prime farmland

Hydric soil status: Fishhook—not hydric

6C2—Fishhook silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Backslopes and shoulders

Map Unit Composition

Fishhook and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have more clay in the surface layer
- Soils that have a seasonal high water at a depth of more than 2 feet

Dissimilar soils:
- The well drained Hickory soils on the lower backslopes
- The well drained Rozetta soils on summits

Properties and Qualities of the Fishhook Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Fishhook—3e
Prime farmland status: Fishhook—not prime farmland
Hydric soil status: Fishhook—not hydric

Fosterburg Series

Taxonomic classification: Fine, smectitic, mesic Vertic Argiaquolls

Typical Pedon (OSD)

Fosterburg silt loam, in an area of Virden-Fosterburg silt loams, 0 to 2 percent slopes, at an elevation of about 510 feet; St. Clair County, Illinois; approximately 125 feet south and 2,500 feet west of the northeast corner of sec. 36, T. 2 N., R. 6 W.; USGS Trenton, Illinois, topographic quadrangle; lat. 38 degrees 34 minutes 55 seconds N. and long. 89 degrees 42 minutes 22 seconds W., NAD 27:

Ap—0 to 8 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure parting to strong fine granular; friable; many very fine roots; few fine rounded black (7.5YR 2.5/1) nodules of iron and manganese with clear strong brown (7.5YR 4/6) boundaries; neutral; clear smooth boundary.

A—8 to 13 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; weak fine angular and subangular blocky structure; friable; many very fine roots; few fine rounded black (7.5YR 2.5/1) nodules of iron and manganese with clear strong brown (7.5YR 4/6) boundaries; neutral; clear smooth boundary.

BA—13 to 20 inches; very dark gray (10YR 3/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine and medium subangular blocky structure; firm; common very fine roots; many faint black (10YR 2/1) organic coatings on faces of peds; few fine and medium rounded black (7.5YR 2.5/1) nodules of iron and manganese with clear strong brown (7.5YR 4/6) boundaries; neutral; clear smooth boundary.

Btkng1—20 to 29 inches; dark gray (2.5Y 4/1) silty clay loam; moderate fine prismatic structure parting to moderate fine and medium angular blocky; firm; common very fine roots; many distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; few fine prominent yellowish brown (10YR 5/4) and strong brown (7.5YR 4/6) masses of iron in the matrix; common fine irregular white (10YR 8/1 dry) masses of carbonate and common medium irregular light brownish gray (10YR 6/2) carbonate concretions with clear white (10YR 8/1 dry) boundaries; slightly effervescent in the matrix; slightly alkaline; gradual smooth boundary.

Btkng2—29 to 41 inches; dark gray (2.5Y 4/1) silty

clay loam; moderate fine prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) and few fine prominent strong brown (7.5YR 4/6) masses of iron in the matrix; few medium rounded black (N 2.5/0) nodules of iron and manganese with sharp boundaries; few fine irregular white (10YR 8/1 dry) masses of carbonate and few medium irregular light brownish gray (10YR 6/2) carbonate concretions with clear white (10YR 8/1 dry) boundaries; slightly effervescent in the matrix; slightly alkaline; gradual smooth boundary.

Btg1—41 to 50 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine and medium prominent yellowish brown (10YR 5/6) and few fine prominent strong brown (7.5YR 4/6) masses of iron in the matrix; few medium rounded black (N 2.5/0) nodules of iron and manganese with clear strong brown (7.5YR 5/6) boundaries; neutral; gradual smooth boundary.

Btg2—50 to 62 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to weak coarse subangular blocky; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; many fine and medium prominent yellowish brown (10YR 5/6) masses of iron in the matrix; few fine irregular black (N 2.5/0) nodules of iron and manganese with clear strong brown (7.5YR 5/6) boundaries; neutral; gradual smooth boundary.

BCtg—62 to 71 inches; olive gray (5Y 5/2) silt loam; weak medium prismatic structure; friable; few very fine roots; few distinct dark grayish brown (2.5Y 4/2) clay films on vertical faces of peds; many medium prominent strong brown (10YR 5/6) masses of iron in the matrix; few fine and medium irregular black (N 2.5/0) nodules of iron and manganese with diffuse strong brown (7.5YR 5/6) boundaries; neutral; gradual smooth boundary.

Cg—71 to 80 inches; light olive gray (5Y 6/2) silt loam; massive; friable; few distinct very dark gray (2.5Y 3/1) organo-clay films lining root channels; common fine and medium prominent reddish yellow (7.5YR 6/8) masses of iron in the matrix; few medium irregular black (N 2.5/0) nodules of iron and manganese with diffuse strong brown (7.5YR 5/6) boundaries; neutral.

Range in Characteristics

Depth to base of diagnostic horizon: 40 to 72 inches
Thickness of the mollic epipedon: 10 to 24 inches

Ap and A horizons:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—2 or 3 (3 or 4 dry)
Chroma—0 or 1
Texture—silt loam or silty clay loam

Btkng, BA, BCtg, or Btg horizon(s):
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—silty clay loam, silty clay, or silt loam

Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—5 or 6
Chroma—0 to 2
Texture—silt loam

885A—Virden-Fosterburg silt loams, 0 to 2 percent slopes

Setting

Landform: Ground moraines (fig. 3)
Position on landform: Toeslopes

Map Unit Composition

Virden and similar soils: 55 percent
Fosterburg and similar soils: 45 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils that have a lighter colored surface soil
- Soils that have a thinner, darker surface soil and have a lighter colored subsurface layer
- Soils that have more sand in the lower part of the subsoil

Properties and Qualities of the Virden Soil

Parent material: Loess
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3.0 to 6.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: None
Erosion: The surface layer is less eroded than the surface layer in the typical pedon of the series description.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Properties and Qualities of the Fosterburg Soil

Parent material: Loess
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Content of sodium: Moderate within a depth of 30 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4.0 to 6.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Virden—2w; Fosterburg—3w
Prime farmland status: Virden and Fosterburg—prime farmland where drained
Hydric soil status: Virden and Fosterburg—hydric

Grantfork Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Aeric Epiaqualfs

Typical Pedon (OSD)

Grantfork silty clay loam, in an area of Atlas-Grantfork silty clay loams, 10 to 18 percent slopes, severely eroded; at an elevation of about 590 feet; Madison County, Illinois; approximately 732 feet east and 560 feet north of the southwest corner of sec. 3, T. 6 N., R. 5 W.; USGS New Douglas, Illinois, topographic quadrangle; lat. 38 degrees 59 minutes 42 seconds N. and long. 89 degrees 39 minutes 17 seconds W., NAD 27:

Ap—0 to 5 inches; dark yellowish brown (10YR 4/4) silty clay loam, light yellowish brown (10YR 6/4) dry; weak fine and medium subangular blocky structure; firm; common very fine and few fine roots; few very fine and fine tubular pores; few fine rounded dark reddish brown (5YR 3/4) masses of iron; few pebbles; neutral; abrupt smooth boundary.
Bt—5 to 12 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak and moderate medium subangular blocky structure; firm; few very fine roots; many faint brown (10YR 4/3) and grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions and common medium distinct strong brown (7.5YR 5/6) masses of iron in the matrix; few pebbles; neutral; clear smooth boundary.
Btg—12 to 23 inches; grayish brown (10YR 5/2) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of iron in the matrix; few fine and medium rounded black (10YR 2/1) nodules of iron and manganese with sharp boundaries; 3 percent exchangeable sodium; 24 percent sand; few pebbles; slightly alkaline; abrupt smooth boundary.
Btng1—23 to 29 inches; light brownish gray (2.5Y 6/2) loam; weak medium and coarse prismatic structure parting to weak medium angular blocky; firm; few very fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) and common medium prominent strong brown (7.5YR 5/8) masses of iron in the matrix; few fine rounded black (10YR 2/1) nodules of iron and manganese; 6 percent exchangeable sodium; few pebbles; moderately alkaline; clear smooth boundary.

Btng2—29 to 37 inches; grayish brown (10YR 5/2) clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) and common medium prominent strong brown (7.5YR 5/6) masses of iron in the matrix; few fine rounded black (10YR 2/1) nodules of iron and manganese; 8 percent exchangeable sodium; few pebbles; moderately alkaline; clear smooth boundary.

2Btng3—37 to 49 inches; light brownish gray (10YR 6/2) clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; many distinct grayish brown (10YR 5/2) clay films on faces of peds and brown (10YR 4/3) clay films lining pores; common medium prominent strong brown (7.5YR 5/6) masses of iron in the matrix; few fine irregular black (10YR 2/1) nodules of iron and manganese; 10 percent exchangeable sodium; common pebbles; moderately alkaline; clear smooth boundary.

2Btng4—49 to 57 inches; light brownish gray (10YR 6/2) loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; many distinct dark grayish brown (10YR 4/2) and dark yellowish brown (10YR 4/4) clay films on faces of peds; common medium prominent strong brown (7.5YR 5/6) masses of iron in the matrix; few fine irregular black (10YR 2/1) nodules of iron and manganese; 11 percent exchangeable sodium; common pebbles; strongly alkaline; clear smooth boundary.

2BCtng—57 to 67 inches; light brownish gray (10YR 6/2) clay loam; weak coarse prismatic structure; friable; common faint grayish brown (10YR 5/2) clay films on vertical faces of peds; few prominent very dark gray (10YR 3/1) organo-clay films lining pores; many medium prominent yellowish brown (10YR 5/6) and yellowish red (5YR 5/8) masses of iron in the matrix; common fine and medium irregular black (10YR 2/1) nodules of iron and manganese with clear strong brown (7.5YR 4/6) boundaries; 11 percent exchangeable sodium; common pebbles; moderately alkaline; clear smooth boundary.

3Btgb—67 to 80 inches; gray (2.5Y 5/1) clay; weak medium prismatic structure parting to moderate medium angular blocky; very firm; many faint gray (2.5Y 5/1) pressure faces on peds; few prominent very dark gray (10YR 3/1) organo-clay films lining pores; many coarse prominent strong brown (7.5YR 5/6) masses of iron in the matrix in the upper part; common pebbles and few cobbles; slightly alkaline.

Range in Characteristics

Depth to base of diagnostic horizon: 45 to more than 80 inches
Depth to glacial till: Typically, 30 to 40 inches, but ranging from 0 to 45 inches

Ap or A horizon(s):
Hue—10YR
Value—3 or 4 (4 to 6 dry)
Chroma—2 to 4
Texture—silty clay loam, clay loam, silt loam, or loam

E, EB, or BE horizon(s), where present:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 4
Texture—silty clay loam, clay loam, silt loam, or loam

Bt, Btg, Btng, 2Bt, 2Btg, or 2Btng horizon(s):
Hue—10YR, 2.5Y, or 7.5YR
Value—4 to 7
Chroma—1 to 4
Texture—silty clay loam, clay loam, silt loam, or loam

BCg, 2BC, 2BCg, 2BCtng, or 3Btgb horizon(s), where present:
Hue—10YR, 5YR, 7.5YR, 2.5Y, or neutral
Value—3 to 7
Chroma—0 to 8
Texture—clay, silty clay loam, clay loam, silt loam, or loam

Cg, C, 2C, or 2Cg horizon, where present:
Hue—10YR, 5YR, 7.5YR, 2.5Y, or neutral
Value—3 to 7
Chroma—0 to 8
Texture—silty clay loam, clay loam, silt loam, or loam

914C3—Atlas-Grantfork silty clay loams, 5 to 10 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on landform: Atlas—the lower backslopes; Grantfork—the upper and middle backslopes

Map Unit Composition

Atlas and similar soils: 55 percent

Grantfork and similar soils: 35 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils that have less clay in the surface layer
- Soils that have less sand in the upper part of the subsoil

Dissimilar soils:
- The well drained Hickory soils on the lower backslopes
- The somewhat poorly drained Keomah and Marine soils on broad summits
- The well drained Rozetta soils on summits

Properties and Qualities of the Atlas Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Very low

Properties and Qualities of the Grantfork Soil

Parent material: Loamy pedisediment over till or a paleosol that formed in till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Content of sodium: Moderate within a depth of 30 inches
Available water capacity: About 10.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Very low

Interpretive Groups

Land capability classification: Atlas—4e; Grantfork—6e
Prime farmland status: Atlas and Grantfork—not prime farmland
Hydric soil status: Atlas and Grantfork—not hydric

Harrison Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls

Typical Pedon (OSD)

Harrison silt loam, 2 to 5 percent slopes, at an elevation of 665 feet; Christian County, Illinois; 228 feet north and 1,350 feet west of the southeast corner of sec. 24, T. 12 N., R. 2 W.; USGS Clarksdale, Illinois, topographic quadrangle; lat. 39 degrees 27 minutes 59 seconds N. and long. 89 degrees 15 minutes 17 seconds W., NAD 27:

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; common very fine and few fine roots; slightly acid; abrupt smooth boundary.
BA—10 to 14 inches; brown (10YR 4/3) silt loam; weak very fine and fine subangular blocky structure; friable; few very fine roots; many distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; moderately acid; clear smooth boundary.
Bt1—14 to 20 inches; brown (10YR 4/3) silt loam; moderate fine subangular blocky structure; friable; few very fine roots; common distinct very dark grayish brown (10YR 3/2) and few distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; few fine faint dark yellowish brown (10YR 4/4) masses of iron along micropores; few fine manganese accumulations in the matrix; moderately acid; clear smooth boundary.
Bt2—20 to 27 inches; brown (10YR 4/3) silty clay

loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine faint brown (7.5YR 4/4 and 10YR 5/3) and dark yellowish brown (10YR 4/4) masses of iron along micropores; few fine manganese accumulations in the matrix; moderately acid; clear smooth boundary.

Bt3—27 to 35 inches; brown (10YR 5/3) silty clay loam; moderate medium subangular blocky structure; firm; few very fine roots; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine faint dark yellowish brown (10YR 4/4) and few fine faint brown (7.5YR 4/4) masses of iron along micropores; few fine manganese accumulations in the matrix; moderately acid; clear smooth boundary.

Bt4—35 to 45 inches; yellowish brown (10YR 5/4) silt loam; weak medium and coarse subangular blocky structure; firm; few very fine roots; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine distinct grayish brown (10YR 5/2) iron depletions along micropores; common fine faint dark yellowish brown (10YR 4/4) and few fine faint brown (7.5YR 4/4) masses of iron in the matrix; few fine manganese accumulations in the matrix; moderately acid; clear smooth boundary.

2Btg—45 to 65 inches; grayish brown (10YR 5/2) silty clay loam; weak medium and coarse subangular blocky structure; firm; few distinct gray (10YR 5/1) clay films on faces of peds; few fine faint brown (10YR 5/3), common fine and medium distinct dark yellowish brown (10YR 4/4), and few fine distinct brown (7.5YR 4/4) masses of iron in the matrix; few fine manganese accumulations in the matrix; about 15 percent sand; about 1 percent gravel; slightly acid; abrupt smooth boundary.

3Btgb—65 to 80 inches; grayish brown (2.5Y 5/2) clay loam; moderate coarse subangular blocky structure; firm; common distinct olive gray (5Y 4/2) clay films on faces of peds; common medium distinct yellowish brown (10YR 5/4) masses of iron in the matrix; few fine manganese accumulations in the matrix; about 5 percent gravel; neutral.

Range in Characteristics

Depth to base of diagnostic horizon: More than 45 inches
Thickness of the loess: 40 to 60 inches
Thickness of the mollic epipedon: 10 to 19 inches

Ap or A horizon(s):
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam

AB or BA horizon(s):
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture—silt loam or silty clay loam

Bt horizon(s):
Hue—10YR
Value—4 to 6
Chroma—2 to 6
Texture—silty clay loam or silt loam

2Btg or 2BCg horizon(s):
Hue—10YR, 7.5YR, or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silty clay loam, silt loam, loam, or clay loam

3Btgb horizon(s):
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 3
Texture—clay loam, clay, silty clay, or silty clay loam

127B—Harrison silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines (fig. 5)
Position on landform: Summits and backslopes

Map Unit Composition

Harrison and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have a thinner surface layer
- Soils that have less sand and less clay in the lower part of the subsoil and in the underlying material
- Soils that have a seasonal high water table within a depth of 2 feet

Properties and Qualities of the Harrison Soil

Parent material: Loess over silty pedisediment
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Slow to moderate
Depth to restrictive feature: More than 80 inches

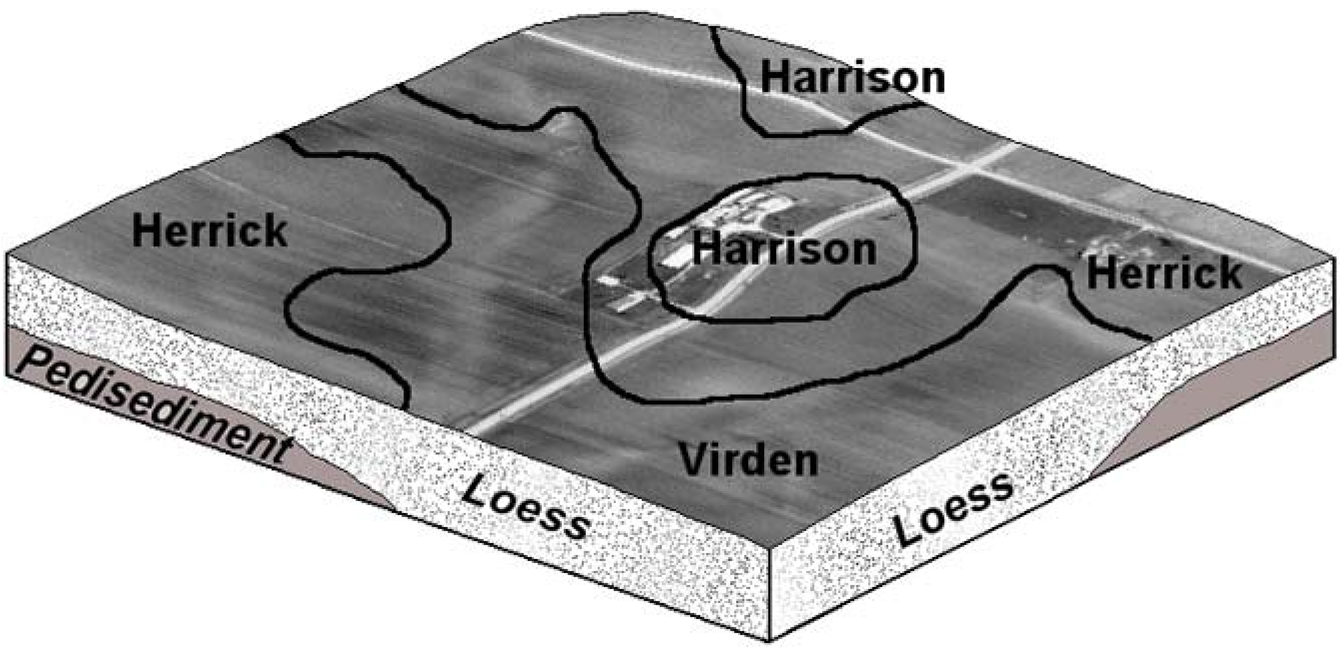


Figure 5.—Typical pattern of upland prairie soils that formed in loess or in loess and the underlying pedisediment; in nearly level to gently sloping areas.

Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 4.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 2.0 to 3.5 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Harrison—2e
Prime farmland status: Harrison—prime farmland in all areas
Hydric soil status: Harrison—not hydric

Herrick Series

Taxonomic classification: Fine, smectitic, mesic Aquic Argiudolls

Typical Pedon (OSD)

Herrick silt loam, 0 to 2 percent slopes, at an elevation of 635 feet; Christian County, Illinois; 1,260 feet south and 60 feet west of the northeast corner of sec. 1, T. 11 N., R. 3 W.; USGS Clarksdale Topographic quadrangle; lat. 39 degrees 26 minutes 0 seconds N. and long. 89 degrees 22 minutes 0 seconds W., NAD 27:

Ap1—0 to 7 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate very fine granular structure; very friable; common fine and very fine roots; common wormcasts and worm channels; common very dark gray (10YR 3/1) organic coatings on faces of peds and lining channels; light brownish gray (10YR 6/2 dry) silt coatings and common very fine concretions of iron and manganese on the soil surface; slightly acid; clear wavy boundary.
Ap2—7 to 11 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak coarse subangular blocky structure parting to weak fine granular; very friable; few fine and medium roots; common wormcasts and worm channels; common distinct very dark gray (10YR 3/1) organic coatings lining channels; few very fine masses of iron and manganese; slightly acid; abrupt smooth boundary.
E—11 to 15 inches; very dark grayish brown (10YR 3/2) silt loam, gray (10YR 5/1) dry; discontinuous weak thick platy structure parting to weak medium granular; friable; few fine roots; few medium worm channels; many distinct grayish brown (10YR 5/2) clay depletions faces of peds, distinct light gray

(10YR 7/1) dry; few fine concretions of iron and manganese and common soft yellowish brown iron accumulations that streak with tools on cut faces; moderately acid; clear smooth boundary.

Btg—15 to 19 inches; dark grayish brown (10YR 4/2) silty clay loam; weak very fine and fine prismatic structure parting to moderate fine and medium subangular blocky; friable; few fine roots; few distinct very dark grayish brown (10YR 3/2) organo-clay films on horizontal and vertical faces of peds; few very fine distinct yellowish brown (10YR 5/4) masses of iron; many distinct light gray (10YR 7/1 dry) clay depletions on faces of peds; few fine concretions and stains of iron and manganese; moderately acid; clear smooth boundary.

Bt1—19 to 25 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular and angular blocky; firm; few fine and very fine roots, dominantly between peds; many distinct very dark grayish brown (10YR 3/2) and common prominent very dark gray (10YR 3/1) organo-clay films and brown (10YR 4/3) clay films on vertical and horizontal faces of peds; common fine distinct yellowish brown (10YR 5/6) and common fine faint brown (7.5YR 4/4) masses of iron and few fine faint grayish brown (10YR 5/2) iron depletions; few fine concretions of iron and manganese; moderately acid; gradual smooth boundary.

Bt2—25 to 35 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium and coarse prismatic structure parting to weak coarse subangular blocky; very firm; few fine and very fine roots, dominantly in the cracks between peds; many distinct very dark gray (10YR 3/1) organo-clay films on vertical and horizontal faces of peds; common medium distinct brown (7.5YR 4/4) masses of iron and few fine prominent grayish brown (10YR 5/2) iron depletions; few concretions of iron and manganese; moderately acid; gradual smooth boundary.

Bt3—35 to 47 inches; yellowish brown (10YR 5/6) silty clay loam; moderate coarse prismatic structure parting to weak coarse subangular blocky; firm; few very fine roots; few very fine continuous vertical tubular pores; many distinct very dark grayish brown (10YR 3/2) organo-clay films on vertical faces of peds and lining pores and common distinct clay films on horizontal faces of peds; common fine prominent light brownish gray (2.5Y 5/2) iron depletions; slightly acid; gradual wavy boundary.

Bt4—47 to 58 inches; yellowish brown (10YR 5/4) silty clay loam; weak very coarse prismatic structure; firm; few very fine roots; many very fine continuous vertical tubular pores; few distinct very dark grayish brown (10YR 3/2) organo-clay films on vertical faces of peds and lining channels; many medium distinct yellowish brown (10YR 5/6) masses of iron and common medium distinct light brownish gray (2.5Y 6/2) iron depletions; slightly acid; gradual smooth boundary.

C—58 to 70 inches; mottled yellowish brown (10YR 5/6) and light brownish gray (2.5Y 6/2) silt loam; massive; friable; few very fine and fine continuous vertical tubular pores; very dark grayish brown clay lining pores; few iron and manganese masses and stains; an increase in the content of coarse silt and very fine sand; neutral; clear smooth boundary.

2C—70 to 80 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; common very fine and fine continuous vertical tubular pores; dark grayish brown clay lining pores; common medium distinct yellowish brown (10YR 5/6) and few fine prominent strong brown (7.5YR 5/8) masses of iron and common fine prominent light brownish gray (2.5Y 6/2) iron depletions; few iron and manganese masses and stains; an increase in the content of coarse silt and very fine sand; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 21 inches
Depth to base of diagnostic horizon: 45 to 60 inches
Thickness of the loess: More than 55 inches

Ap or A horizon(s):
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam

E horizon(s):
Hue—10YR
Value—3 or 4
Chroma—1 or 2
Texture—silt loam

Btg or Bt horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—2 to 6
Texture—silty clay loam, silty clay, or silt loam

C, 2Cg, or Cg horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6

Chroma—2 to 6
Texture—silt loam, clay loam, loam, or silty clay loam

46A—Herrick silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines (fig. 5)
Position on landform: Summits

Map Unit Composition

Herrick and similar soils: 92 percent
Dissimilar soils: 8 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils that do not have a light colored subsurface layer
- Soils that have a thinner dark surface layer
- Soils that have more sand and clay in the lower part of the subsoil

Dissimilar soils:
- The poorly drained Cowden, Piasa, and Virden soils in depressions and on toeslopes

Properties and Qualities of the Herrick Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 4.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Herrick—2w
Prime farmland status: Herrick—prime farmland in all areas
Hydric soil status: Herrick—not hydric

894A—Herrick-Biddle-Piasa silt loams, 0 to 2 percent slopes

Setting

Landform: Ground moraines (fig. 3)
Position on landform: Herrick and Biddle—summits; Piasa—summits and toeslopes

Map Unit Composition

Herrick and similar soils: 45 percent
Biddle and similar soils: 35 percent
Piasa and similar soils: 20 percent

Minor Components

Similar soils:
- Soils that have a lighter colored surface soil
- Soils that have a thinner surface layer

Properties and Qualities of the Herrick Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 4.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Properties and Qualities of the Biddle Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Content of sodium: Moderate within a depth of 30 inches

Available water capacity: About 11.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Properties and Qualities of the Piasa Soil

Parent material: Loess over silty pedisediment
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Content of sodium: High within a depth of 30 inches
Available water capacity: About 7.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: High
Perched seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Herrick and Biddle—2w; Piasa—3w
Prime farmland status: Herrick, Biddle, and Piasa—not prime farmland
Hydric soil status: Herrick and Biddle—not hydric; Piasa—hydric

Hickory Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Hickory silt loam, 35 to 60 percent slopes, at an elevation of 565 feet; Cass County, Illinois; 1,935 feet north and 2,130 feet west of the southeast corner of sec. 27, T. 18 N., R. 9 W.; USGS Ashland, Illinois, topographic quadrangle; lat. 39 degrees 58 minutes 47.5 seconds N. and long. 90 degrees 5 minutes 38 seconds W., NAD 27:

A1—0 to 1 inch; very dark grayish brown (10YR 3/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; many very fine roots; slightly acid; abrupt smooth boundary.

A2—1 to 4 inches; 90 percent dark grayish brown (10YR 4/2) and 10 percent brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky and granular structure; friable; many very fine roots; moderately acid; abrupt smooth boundary.

E—4 to 8 inches; brown (10YR 5/3) loam, light gray (10YR 7/2) dry; moderate thin platy structure; friable; few very fine and fine roots; few distinct very dark grayish brown (10YR 3/2) organic coatings in root channels and/or pores; common fine distinct very pale brown (10YR 8/2) clay depletions between peds; 3 percent gravel; strongly acid; abrupt smooth boundary.

BE—8 to 12 inches; yellowish brown (10YR 5/4) loam, light gray (10YR 7/2) dry; moderate very fine and fine subangular blocky structure; friable; few very fine roots; very few faint brown (10YR 5/3) and very few distinct dark grayish brown (10YR 4/2) organic coatings in root channels and/or pores; common fine distinct very pale brown (10YR 8/2) clay depletions between peds; 3 percent gravel; strongly acid; clear smooth boundary.

Bt1—12 to 22 inches; yellowish brown (10YR 5/4) clay loam; moderate fine and medium subangular blocky structure; firm; few very fine roots; common faint dark yellowish brown (10YR 4/4) clay films and common distinct very pale brown (10YR 7/3) silt coatings on faces of peds; 5 percent gravel; very strongly acid; clear smooth boundary.

Bt2—22 to 29 inches; yellowish brown (10YR 5/4) clay loam; moderate fine and medium subangular blocky structure; firm; few very fine roots; many faint dark yellowish brown (10YR 4/4) clay films and few distinct very pale brown (10YR 7/3) silt coatings on faces of peds; 5 percent gravel; strongly acid; clear smooth boundary.

Bt3—29 to 40 inches; yellowish brown (10YR 5/4) clay loam; moderate medium prismatic and subangular blocky structure; firm; few very fine roots; many distinct brown (7.5YR 4/4) clay films and very few distinct very pale brown (10YR 7/3) silt coatings on faces of peds; 5 percent gravel; moderately acid; clear smooth boundary.

Bt4—40 to 53 inches; yellowish brown (10YR 5/6) clay

loam; weak medium prismatic and weak medium and coarse subangular blocky structure; firm; few very fine roots; many distinct brown (7.5YR 4/4) clay films on faces of peds; few prominent fine black (10YR 2/1) masses of iron and manganese throughout; 5 percent gravel; moderately acid; gradual smooth boundary.

BCt—53 to 58 inches; yellowish brown (10YR 5/6) loam; weak medium prismatic and weak medium and coarse subangular blocky structure; firm; few very fine roots; common distinct brown (7.5YR 4/4) clay films on faces of peds; few fine prominent black (10YR 2/1) masses of iron and manganese and common distinct brown (10YR 5/3) iron depletions throughout; 5 percent gravel; neutral; gradual smooth boundary.

C—58 to 63 inches; yellowish brown (10YR 5/6) loam; massive; firm; very few distinct brown (7.5YR 4/4) clay films in root channels and/or pores; few prominent fine black (10YR 2/1) masses of iron and manganese and many fine distinct light brownish gray (2.5Y 6/2) iron depletions throughout; 3 percent gravel; slightly alkaline.

Range in Characteristics

Depth to carbonates (where present): More than 40 inches
Depth to base of diagnostic horizon: More than 40 inches
Thickness of the loess: Less than 20 inches

Ap or A horizon(s):
Hue—10YR or 7.5YR
Value—2 to 5
Chroma—2 to 4
Texture—silt loam, loam, clay loam, or silty clay loam
Content of rock fragments—0 to 5 percent

E horizon(s):
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—silt loam or loam
Content of rock fragments—0 to 5 percent

Bt horizon(s):
Hue—10YR, 7.5YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—clay loam, silty clay loam, loam, or gravelly clay loam
Content of rock fragments—0 to 20 percent

C horizon(s):
Hue—7.5YR, 10YR, or 2.5Y
Value—5 to 7
Chroma—1 to 8
Texture—loam, clay loam, sandy loam, or the gravelly analogs of those textures
Content of rock fragments—2 to 20 percent

8D2—Hickory loam, 10 to 18 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Backslopes

Map Unit Composition

Hickory and similar soils: 91 percent
Dissimilar soils: 9 percent

Minor Components

Similar soils:
- Soils that have less sand in the surface layer
- Soils that have a seasonal high water table at a depth of 4 to 6 feet
- Soils that have a thicker surface soil

Dissimilar soils:
- The somewhat poorly drained Atlas soils on the upper backslopes
- The well drained Fayette soils on shoulders
- The well drained Rozetta soils on summits
- The well drained Terril soils on footslopes

Properties and Qualities of the Hickory Soil

Parent material: Till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Seasonal high water table: At a depth of more than 6 feet
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: Moderate

Corrosivity: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Hickory—3e
Prime farmland status: Hickory—not prime farmland
Hydric soil status: Hickory—not hydric

8D3—Hickory clay loam, 10 to 18 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on landform: Backslopes

Map Unit Composition

Hickory and similar soils: 91 percent
Dissimilar soils: 9 percent

Minor Components

Similar soils:
- Soils that have less clay in the surface layer
- Soils that have a seasonal high water table at a depth of 4 to 6 feet

Dissimilar soils:
- The somewhat poorly drained Atlas soils on the upper backslopes
- The well drained Fayette soils on shoulders
- The well drained Rozetta soils on summits
- The well drained Terril soils on footslopes

Properties and Qualities of the Hickory Soil

Parent material: Till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Seasonal high water table: At a depth of more than 6 feet
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Hickory—4e
Prime farmland status: Hickory—not prime farmland
Hydric soil status: Hickory—not hydric

8F—Hickory silt loam, 18 to 35 percent slopes

Setting

Landform: Ground moraines (fig. 4)
Position on landform: Backslopes

Map Unit Composition

Hickory and similar soils: 91 percent
Dissimilar soils: 9 percent

Minor Components

Similar soils:
- Soils that have more sand in the surface layer
- Soils that have carbonates within a depth of 40 inches
- Soils that have a thinner surface soil

Dissimilar soils:
- The well drained Fayette soils on shoulders
- The moderately well drained Homen soils on shoulders
- The well drained Rozetta soils on summits

Properties and Qualities of the Hickory Soil

Parent material: Till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Seasonal high water table: At a depth of more than 6 feet
Flooding: None
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Hickory—6e
Prime farmland status: Hickory—not prime farmland
Hydric soil status: Hickory—not hydric

8F2—Hickory loam, 18 to 35 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Backslopes

Map Unit Composition

Hickory and similar soils: 85 percent
Dissimilar soils: 15 percent

Minor Components

Similar soils:
• Soils that have less sand in the surface layer
• Soils that have carbonates within a depth of 40 inches
• Soils that have a thicker surface soil

Dissimilar soils:
• The well drained Fayette soils on shoulders
• The moderately well drained Homen soils on shoulders
• The well drained Rozetta soils on summits

Properties and Qualities of the Hickory Soil

Parent material: Till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Seasonal high water table: At a depth of more than 6 feet
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Hickory—6e
Prime farmland status: Hickory—not prime farmland
Hydric soil status: Hickory—not hydric

8G—Hickory silt loam, 35 to 60 percent slopes

Setting

Landform: Ground moraines (fig. 4)
Position on landform: Backslopes

Map Unit Composition

Hickory and similar soils: 91 percent
Dissimilar soils: 9 percent

Minor Components

Similar soils:
• Soils that have more sand in the surface layer
• Soils that have carbonates within a depth of 40 inches
• Soils that have a thinner surface soil

Dissimilar soils:
• The well drained Fayette soils on shoulders
• The moderately well drained Homen soils on shoulders
• The well drained Rozetta soils on summits

Properties and Qualities of the Hickory Soil

Parent material: Till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Seasonal high water table: At a depth of more than 6 feet
Flooding: None
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Hickory—7e
Prime farmland status: Hickory—not prime farmland
Hydric soil status: Hickory—not hydric

Homen Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon (OSD)

Homen silt loam, 2 to 5 percent slopes, eroded, at an elevation of about 560 feet; Randolph County, Illinois; approximately 714 feet south and 45 feet east of the center of sec. 1, T. 5 S., R. 5 W.; USGS Percy, Illinois, topographic quadrangle; lat. 38 degrees 7 minutes 23 seconds N. and long. 89 degrees 36 minutes 5 seconds W., NAD 27:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many very fine and fine roots; few fine rounded black (N 2.5/0) concretions of iron and manganese; slightly acid; abrupt smooth boundary.

E—9 to 15 inches; yellowish brown (10YR 5/4) silt loam, light yellowish brown (10YR 6/4) dry; weak medium platy structure parting to moderate medium granular; friable; common very fine and fine roots; few fine rounded black (N 2.5/0) concretions of iron and manganese; very strongly acid; clear smooth boundary.

Bt—15 to 22 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; common very fine and fine roots; common prominent very pale brown (10YR 7/3 dry) clay depletions on faces of peds; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine and medium rounded black (N 2.5/0) concretions of iron and manganese; very strongly acid; abrupt smooth boundary.

Bt/E—22 to 28 inches; yellowish brown (10YR 5/6) silty clay loam; moderate fine and medium subangular blocky structure; firm; common fine roots along vertical faces of peds; many prominent very pale brown (10YR 7/3 dry) clay depletions on faces of peds; many distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine and medium rounded black (N 2.5/0) concretions of iron and manganese; very strongly acid; abrupt smooth boundary.

B´t1—28 to 37 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots throughout; common prominent very pale brown (10YR 7/3 dry) clay depletions on faces of peds and many prominent dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron in the matrix; few medium irregular dark brown (7.5YR 3/4) masses of iron and manganese with clear strong brown (7.5YR 5/6) boundaries; very strongly acid; clear smooth boundary.

B´t2—37 to 48 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots throughout; few prominent very pale brown (10YR 7/3 dry) clay depletions on faces of peds and common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron in the matrix; few medium irregular dark brown (7.5YR 3/4) masses of iron and manganese with clear strong brown (7.5YR 5/6) boundaries; strongly acid; gradual smooth boundary.

B´t3—48 to 58 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; friable; common very fine roots throughout; few distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and few fine distinct yellowish brown (10YR 5/6) masses of iron in the matrix; few medium irregular very dark brown (7.5YR 2.5/2) masses of iron and manganese with clear strong brown (7.5YR 5/6) boundaries; moderately acid; clear smooth boundary.

2BC—58 to 66 inches; brown (7.5YR 5/4) silt loam, weak coarse subangular blocky structure; friable; few very fine roots throughout; few fine distinct pinkish gray (7.5YR 6/2) iron depletions in the matrix; few medium irregular black (7.5YR 2.5/1) masses of iron and manganese; moderately acid; gradual smooth boundary.

2C—66 to 80 inches; brown (7.5YR 4/4) silt loam; massive with a few diagonal cleavage planes; friable; few very fine roots throughout; few prominent black (N 2.5/0) coatings of iron and manganese lining root channels and pores; few fine distinct pinkish gray (7.5YR 6/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) and few fine distinct strong

brown (7.5YR 5/6) masses of iron in the matrix; few fine irregular black (7.5YR 2.5/1) masses of iron and manganese; slightly acid.

Range in Characteristics

Depth to base of diagnostic horizon: 40 to 80 inches
Thickness of the loess: 40 to 80 inches

Ap or A horizon(s):
Hue—10YR
Value—3 to 5 (5 to 7 dry)
Chroma—1 to 3
Texture—silt loam

E horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 4
Texture—silt loam

Bt horizon(s):
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam

Bt/E or B´t horizon(s):
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silty clay loam or silt loam

BC, 2BC, 2C, or C horizon(s):
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—commonly, silt loam; less commonly, silty clay loam, clay loam, or loam

582B—Homen silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on landform: Shoulders and summits

Map Unit Composition

Homen and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
• Soils that have a thinner surface soil
• Soils that have a seasonal water table within a depth of 2 feet
• Soils that have a darker surface layer
• Soils that have more sand in the lower part of the subsoil and in the underlying material

Dissimilar soils:
• The well drained Hickory soils on backslopes

Properties and Qualities of the Homen Soil

Parent material: Loess over silty pedisediment
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table: 2.0 to 3.5 feet below the surface
Flooding: None
Erosion: The surface layer is less eroded than the surface layer in the typical pedon of the series description.
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Homen—2e
Prime farmland status: Homen—prime farmland in all areas
Hydric soil status: Homen—not hydric

582C2—Homen silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Backslopes and shoulders

Map Unit Composition

Homen and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
• Soils that have a seasonal high water table within a depth of 2 feet
• Soils that have more sand in the lower part of the subsoil and in the underlying material

Dissimilar soils:
- The well drained Hickory soils on the lower backslopes

Properties and Qualities of the Homen Soil

Parent material: Loess over silty pedisediment
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table: 2.0 to 3.5 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Homen—3e
Prime farmland status: Homen—not prime farmland
Hydric soil status: Homen—not hydric

Ipava Series

Taxonomic classification: Fine, smectitic, mesic Aquic Argiudolls

Typical Pedon (OSD)

Ipava silt loam, 0 to 2 percent slopes, at an elevation of 804 feet; Knox County, Illinois; 2,046 feet west and 594 feet north of the southeast corner of sec. 25, T. 13 N., R. 2 E.; USGS Oneida topographic quadrangle; lat. 41 degrees 04 minutes 40 seconds N. and long. 90 degrees 13 minutes 03 seconds W., NAD 27:

Ap—0 to 10 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate fine and medium subangular blocky structure; friable; moderately acid; abrupt smooth boundary.

A—10 to 18 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; weak fine and medium subangular blocky structure; friable; common distinct black (10YR 2/1) organic coatings on faces of peds; moderately acid; clear smooth boundary.

BA—18 to 24 inches; brown (10YR 4/3) silty clay loam; moderate fine and medium subangular blocky structure; friable; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds; few fine distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix; few distinct yellowish brown (10YR 5/6) masses of iron in the matrix; moderately acid; clear smooth boundary.

Btg1—24 to 31 inches; dark grayish brown (10YR 4/2) silty clay; moderate fine prismatic structure parting to moderate fine subangular blocky; friable; common faint dark gray (10YR 4/1) clay films on faces of peds; few fine distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix; common fine prominent yellowish brown (10YR 5/8) masses of iron in the matrix; slightly acid; clear smooth boundary.

Btg2—31 to 37 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; friable; common distinct dark gray (10YR 4/1) clay films on faces of peds; common fine faint light brownish gray (2.5Y 6/2) iron depletions in the matrix; common medium prominent strong brown (7.5YR 5/8) masses of iron in the matrix; few fine black (7.5YR 2.5/1) very weakly cemented concretions of iron and manganese throughout; few fine black (7.5YR 2.5/1) iron and manganese stains on faces of peds; slightly alkaline; gradual smooth boundary.

BCg—37 to 50 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; friable; few distinct very dark grayish brown (10YR 3/2) organo-clay films lining pores and on a few vertical faces of peds; common fine faint light brownish gray (2.5Y 6/2) iron depletions in the matrix; common fine prominent strong brown (7.5YR 5/8) masses of iron in the matrix; few fine black (7.5YR 2.5/1) very weakly cemented concretions of iron and manganese throughout; common fine black (7.5YR 2.5/1) iron and manganese stains on faces of peds; slightly alkaline; clear smooth boundary.

Cg—50 to 60 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; few faint very dark grayish brown (10YR 3/2) organo-clay films lining pores; common fine prominent yellowish brown (10YR 5/8) masses of iron in the matrix; few fine black (7.5YR 2.5/1) very weakly cemented concretions of iron and manganese throughout; few fine black (7.5YR 2.5/1) iron and manganese stains on faces of vertical cracks; moderately alkaline.

Range in Characteristics

Depth to carbonates: More than 40 inches
Depth to base of diagnostic horizon: 35 to 55 inches
Thickness of the mollic epipedon: 10 to 24 inches

Ap or A horizon(s):
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam or silty clay loam

BA, Bt, Btg, BC, or BCg horizon(s), where present:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—2 to 4
Texture—typically, silty clay loam or silty clay; silt loam in the lower part in some pedons

Cg or C horizon(s):
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—1 to 4
Texture—typically, silt loam; silty clay loam in some pedons

43A—Ipava silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines (fig. 2)
Position on landform: Summits and footslopes

Map Unit Composition

Ipava and similar soils: 88 percent
Dissimilar soils: 12 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils that have more sand and clay in the lower part of the subsoil and in the underlying material
- Soils that have a thinner dark surface soil

Dissimilar soils:
- The moderately well drained Assumption soils on backslopes
- The poorly drained Virden soils in depressions and on toeslopes

Properties and Qualities of the Ipava Soil

Parent material: Loess
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.5 to 5.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Ipava—1
Prime farmland status: Ipava—prime farmland in all areas
Hydric soil status: Ipava—not hydric

Judyville Series

Taxonomic classification: Loamy-skeletal, mixed, active, mesic Typic Dystrudepts

Typical Pedon

Judyville loam, 35 to 60 percent slopes, at an elevation of 541 feet; Macoupin County, Illinois; 1,240 feet north and 100 feet west of the southeast corner of sec. 10, T. 12 N., R. 9 W.; USGS Scottville, Illinois, topographical quadrangle; lat. 39 degrees 29 minutes 44 seconds N. and long. 90 degrees 04 minutes 38 seconds W., NAD 27:

A—0 to 4 inches; dark grayish brown (10YR 4/2) loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.
Bw1—4 to 14 inches; light yellowish brown (10YR 6/4) very channery loam; weak fine and medium subangular blocky structure; friable; many fine and few coarse roots; few fine prominent strong brown (7.5YR 5/8) masses of iron throughout; 40 percent sandstone fragments; strongly acid; gradual smooth boundary.
Bw2—14 to 20 inches; brownish yellow (10YR 6/6) very channery loam; weak fine and medium subangular blocky structure; friable; many medium and few coarse roots; few fine distinct strong brown (7.5YR 5/8) masses of iron throughout; 60 percent sandstone fragments; very strongly acid; abrupt smooth boundary.

R—20 inches; sandstone bedrock.

Range in Characteristics

Depth to lithic contact: 20 to 40 inches

A horizon(s):
Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture—fine sandy loam, sandy loam, loam, or the channery analogs of those textures
Content of rock fragments—0 to 20 percent

Bw horizon(s):
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 6
Texture—the very channery or extremely channery analogs of fine sandy loam, sandy loam, silt loam, or loam
Content of rock fragments—40 to 85 percent

CB or C horizon(s), where present: :
Hue—10YR or 7.5YR
Value—5 or 6
Chroma—4 to 6
Texture—the very channery or extremely channery analogs of fine sandy loam or sandy loam
Content of rock fragments—40 to 85 percent

R horizon(s):
Kind of bedrock—strongly cemented, fractured sandstone

713G—Judyville loam, 35 to 60 percent slopes

Setting

Landform: Ground moraines
Position on landform: Backslopes

Map Unit Composition

Judyville and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that have bedrock within a depth of 20 inches
- Soils that have a lower content of rock fragments in the subsoil

Dissimilar soils:
- The somewhat poorly drained Atlas soils on the higher backslopes
- The well drained Fayette soils on shoulders
- The well drained Hickory soils on the higher backslopes

Properties and Qualities of the Judyville Soil

Parent material: Loess over residuum weathered from sandstone
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow to rapid
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Available water capacity: About 1.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: Low
Seasonal high water table: At a depth of more than 6 feet
Flooding: None
Potential for frost action: Low
Corrosivity: Low for steel and high for concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Judyville—7e
Prime farmland status: Judyville—not prime farmland
Hydric soil status: Judyville—not hydric

Keller Series

Taxonomic classification: Fine-silty, mixed, superactive mesic Aquic Argiudolls

Typical Pedon (OSD)

Keller silt loam, 5 to 10 percent slopes; at an elevation of 736 feet; Brown County, Illinois; 2,460 feet north and 980 feet east of the southwest corner of sec. 9, T. 1 S., R. 4 W.; USGS Mt. Sterling, Illinois, topographic quadrangle; lat. 39 degrees 59 minutes 41 seconds N. and long. 90 degrees 52 minutes 13 seconds W., NAD 27:

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak fine granular structure; friable; common fine roots throughout; slightly acid; clear smooth boundary.
A—8 to 15 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak fine granular structure; friable; common fine roots throughout; moderately acid; clear smooth boundary.

BA—15 to 19 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure parting to weak fine granular; friable; common fine roots throughout; common fine continuous tubular pores; common distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; common fine faint brown (10YR 5/3) masses of iron throughout; slightly acid; clear smooth boundary.

Btg1—19 to 24 inches; dark grayish brown (10YR 4/2) silty clay loam; weak fine subangular blocky structure; friable; common fine roots throughout; common fine continuous tubular pores; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common fine faint brown (10YR 5/3) and common fine prominent yellowish brown (10YR 5/6) masses of iron throughout; moderately acid; clear smooth boundary.

2Btg2—24 to 33 inches; dark grayish brown (2.5Y 4/2) silty clay loam; weak medium subangular blocky structure; firm; few fine roots throughout; few fine continuous tubular pores; many distinct dark gray (10YR 4/1) clay films on faces of peds; many fine prominent yellowish brown (10YR 5/6) masses of iron and common fine and medium faint black (2.5Y 2/1) masses of iron and manganese throughout; moderately acid; clear smooth boundary.

2Btg3—33 to 51 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate fine prismatic structure; firm; few fine roots in cracks; few fine constricted tubular pores; many distinct dark gray (10YR 4/1) clay films on faces of peds; many fine prominent dark yellowish brown (10YR 4/6) masses of iron throughout, common fine faint black (2.5Y 2/1) concretions of iron and manganese throughout, and common fine prominent white (10YR 8/1) masses of barite throughout; slightly acid; clear smooth boundary.

2Btg4—51 to 61 inches; gray (10YR 5/1) silty clay loam; weak coarse prismatic structure; firm; few fine roots in cracks; few fine constricted tubular pores; common distinct dark gray (10YR 4/1) clay films on faces of peds and in pores; many fine prominent light olive brown (2.5Y 5/4) masses of iron throughout, common fine distinct white (10YR 8/1) masses of barite throughout, and common fine prominent black (2.5Y 2/1) masses of iron and manganese throughout; moderately acid; clear smooth boundary.

2BCg—61 to 80 inches; gray (10YR 5/1) silty clay loam; very weak coarse prismatic structure; firm; common fine prominent light olive brown (2.5Y 5/6) masses of iron and common fine distinct white (10YR 8/1) masses of barite throughout; slightly acid.

Range in Characteristics

Depth to base of diagnostic horizon: 50 to 70 inches
Thickness of the loess: 20 to 40 inches
Thickness of the mollic epipedon: 10 to 19 inches

Ap or A horizon(s):
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam

BA horizon, where present:
Hue—10YR
Value—3 or 4
Chroma—1 to 3
Texture—silty clay loam or silt loam

Bt or Btg horizon(s):
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—silty clay loam

2Btg or 2Bt horizon(s):
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 6
Chroma—0 to 3
Texture—silty clay loam, clay loam, clay, or silty clay

470B—Keller silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on landform: Backslopes and shoulders

Map Unit Composition

Keller and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have a thinner surface soil
- Soils that have less clay in the lower part of the subsoil and in the underlying material
- Soils that have a lighter colored surface soil

Properties and Qualities of the Keller Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Somewhat poorly drained

Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 5.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Keller—2e
Prime farmland status: Keller—prime farmland in all areas
Hydric soil status: Keller—not hydric

Keomah Series

Taxonomic classification: Fine, smectitic, mesic Aeric Endoaqualfs

Typical Pedon

Keomah silt loam, 0 to 2 percent slopes, at an elevation of 655 feet; Adams County, Illinois; 2,495 feet south and 300 feet west of the northeast corner of sec. 4, T. 2 N., R. 7 W.; USGS Loraine topographic quadrangle; lat. 40 degrees 11 minutes 22 seconds N. and long. 91 degrees 12 minutes 11 seconds W., NAD 27:

Ap1—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak thick platy structure parting to weak fine subangular blocky; friable; many very fine and fine roots; moderately acid; abrupt smooth boundary.

Ap2—6 to 11 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium platy structure parting to weak fine subangular blocky; friable; common very fine and fine roots; few distinct brown (7.5YR 4/4) masses of iron throughout; moderately acid; abrupt smooth boundary.

E—11 to 18 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak medium platy structure parting to weak fine subangular blocky; friable; common fine roots; few faint dark grayish brown (10YR 4/2) organic coatings on faces of peds and in pores; few distinct black (2.5Y 2/1) masses of iron and manganese throughout, few prominent strong brown (7.5YR 5/6) masses of iron throughout, and few faint light gray (10YR 7/2) clay depletions throughout; slightly acid; clear smooth boundary.

Bt1—18 to 25 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate fine subangular blocky; firm; common fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds; many prominent strong brown (7.5YR 5/6) masses of iron throughout, common distinct black (2.5Y 2/1) masses of iron and manganese throughout, and few faint grayish brown (10YR 5/2) iron depletions throughout; strongly acid; clear smooth boundary.

Bt2—25 to 33 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds and few faint pressure faces; common distinct black (2.5Y 2/1) masses of iron and manganese and many prominent strong brown (7.5YR 5/6) masses of iron throughout; strongly acid; clear smooth boundary.

Bt3—33 to 44 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; common distinct grayish brown (10YR 5/2) clay films on faces of peds; many prominent strong brown (7.5YR 5/6) masses of iron throughout, common prominent black (2.5Y 2/1) masses of iron and manganese throughout, and common faint light brownish gray (10YR 6/2) iron depletions throughout; moderately acid; clear smooth boundary.

Bt4—44 to 51 inches; light brownish gray (10YR 6/2) silty clay loam; weak coarse prismatic structure; firm; few fine roots; few distinct dark grayish brown (10YR 4/2) clay films in root channels and/or pores; few prominent black (2.5Y 2/1) masses of iron and manganese and many prominent strong brown (7.5YR 5/6) masses of iron throughout; moderately acid; clear smooth boundary.

BC1—51 to 63 inches; light brownish gray (10YR 6/2) silt loam; weak coarse prismatic structure; friable; few very fine roots; common prominent very dark grayish brown (10YR 3/2) organo-clay films in root channels and/or pores; many prominent strong brown (7.5YR 5/6) masses of iron and few

prominent black (2.5Y 2/1) masses of iron and manganese throughout; slightly acid; clear smooth boundary.

BC2—63 to 76 inches; light brownish gray (10YR 6/2) silt loam; weak coarse prismatic structure; friable; common prominent very dark grayish brown (10YR 3/2) organo-clay films in root channels and/or pores; few prominent black (2.5Y 2/1) masses of iron and manganese and many prominent strong brown (7.5YR 5/6) masses of iron throughout; slightly acid; clear smooth boundary.

C—76 to 89 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; few distinct strong brown (7.5YR 5/6) masses of iron throughout, few prominent black (2.5Y 2/1) masses of iron and manganese throughout, and common distinct light brownish gray (10YR 6/2) iron depletions throughout; slightly acid.

Range in Characteristics

Depth to base of diagnostic horizon: 40 to 76 inches

Ap or A horizon(s):
Hue—10YR
Value—3 or 4 (3 in horizons less than 3 inches thick)
Chroma—1 or 2
Texture—silt loam

E horizon(s):
Hue—10YR
Value—4 or 5
Chroma—1 to 3
Texture—silt loam

Bt horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—2 to 4
Texture—silty clay loam or silty clay

C horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—2 to 6
Texture—silty clay loam or silt loam

17A—Keomah silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on landform: Summits

Map Unit Composition

Keomah and similar soils: 92 percent
Dissimilar soils: 8 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that have a moderate content of sand in the lower part of the subsoil

Dissimilar soils:
- The moderately well drained Homen soils on narrow summits and shoulders
- The well drained Rozetta soils on narrow summits and shoulders
- The poorly drained Rushville soils in depressions

Properties and Qualities of the Keomah Soil

Parent material: Loess or other silty material
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Keomah—2w
Prime farmland status: Keomah—prime farmland where drained
Hydric soil status: Keomah—not hydric

9017A—Keomah silt loam, terrace, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Position on landform: Summits

Map Unit Composition

Keomah and similar soils: 90 percent

Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have more sand in the lower part of the subsoil and in the underlying material
- Soils that have a darker surface layer

Dissimilar soils:
- The well drained Camden and Martinsville soils on terrace risers
- The well drained Rozetta soils on narrow terrace summits
- The poorly drained Sawmill soils on flood plains

Properties and Qualities of the Keomah Soil

Parent material: Loess or other silty material
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Keomah—2w
Prime farmland status: Keomah—prime farmland where drained
Hydric soil status: Keomah—not hydric

Landes Series

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls

Typical Pedon (OSD)

Landes fine sandy loam, 0 to 2 percent slopes, frequently flooded, at an elevation of about 440 feet; Cass County, Illinois; 99 feet south and 990 feet west of the northeast corner of sec. 4, T. 18 N., R. 11 W.; USGS Clearlake, Illinois, topographic quadrangle; lat. 40 degrees 02 minutes 51 seconds N. and long. 90 degrees 19 minutes 58 seconds W., NAD 27:

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) fine sandy loam, brown (10YR 4/3) dry; weak fine subangular blocky structure parting to weak fine granular; friable; few very fine roots; few fine very dark gray (10YR 3/1) organic coatings on faces of peds; neutral; abrupt smooth boundary.

A—5 to 14 inches; very dark grayish brown (10YR 3/2) fine sandy loam, brown (10YR 5/3) dry; weak medium subangular blocky structure; friable; few very fine roots; neutral; clear smooth boundary.

AB—14 to 19 inches; dark brown (10YR 3/3) loam, brown (10YR 5/3) dry; weak fine and medium subangular blocky structure; friable; few very fine roots; many faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; neutral; clear smooth boundary.

Bw1—19 to 23 inches; brown (10YR 4/3) loam; weak fine and medium subangular blocky structure; friable; few very fine roots; many faint dark brown (10YR 3/3) and few faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; neutral; clear smooth boundary.

Bw2—23 to 28 inches; brown (10YR 4/3) fine sandy loam; weak medium subangular blocky structure; friable; few very fine roots; common faint dark brown (10YR 3/3) organic coatings on faces of peds; neutral; clear smooth boundary.

Bw3—28 to 32 inches; brown (10YR 4/3) and dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; very friable; few very fine roots; common faint dark brown (10YR 3/3) organic coatings on faces of peds; less than 2 percent fine gravel; neutral; clear smooth boundary.

BC—32 to 36 inches; dark yellowish brown (10YR 4/4) and brown (10YR 4/3) loamy sand; weak medium subangular blocky structure; very friable; few very fine roots; 5 percent fine gravel; neutral; clear smooth boundary.

C—36 to 60 inches; yellowish brown (10YR 5/4) sand; single grain; loose; 2 percent fine gravel; neutral.

Range in Characteristics

Depth to base of diagnostic horizon: 22 to 40 inches
Thickness of the mollic epipedon: 10 to 20 inches

Ap, A, or AB horizon(s):
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—fine sandy loam, very fine sandy loam, sandy loam, or loam

Bw horizon(s):
Hue—10YR
Value—3 to 6
Chroma—2 to 4
Texture—loam, fine sandy loam, very fine sandy loam, sandy loam, loamy fine sand, or loamy very fine sand

BC or C horizon(s):
Hue—10YR, 7.5YR, 5YR, or 2.5YR
Value—4 to 6
Chroma—1 to 4
Texture—sand, fine sand, very fine sand, loamy sand, loamy fine sand, sandy loam, fine sandy loam, very fine sandy loam, loam, or silt loam (stratified in many pedons)

3304A—Landes fine sandy loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Natural levees on flood plains

Map Unit Composition

Landes and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table within a depth of 6 feet
- Soils that have less sand in the subsoil

Properties and Qualities of the Landes Soil

Parent material: Loamy alluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately rapid
Permeability below a depth of 60 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Low
Seasonal high water table: At a depth of more than 6 feet
Flooding: Frequent, November-June
Potential for frost action: Moderate
Corrosivity: Low for steel and concrete
Surface runoff class: Very low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Moderately high

Interpretive Groups

Land capability classification: Landes—3w
Prime farmland status: Landes—prime farmland where protected from flooding or not frequently flooded during the growing season
Hydric soil status: Landes—not hydric

830—Landfills

Setting

This map unit is in areas of garbage and other refuse and in areas of rubble from the demolition of buildings and pavement. The surface is typically covered by a layer of compacted earth. Slopes vary considerably. Some landfills are active, but some have been abandoned.

Map Unit Composition

Landfills: 85 percent
Dissimilar components: 15 percent

Minor Components

Dissimilar components:
- The well drained, loamy Orthents in areas adjacent to the landfills

Interpretive Groups

Land capability classification: Landfills—none assigned
Prime farmland status: Landfills—not prime farmland
Hydric soil status: Landfills—unranked

Lawson Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls

Typical Pedon

Lawson silt loam, 0 to 2 percent slopes, frequently flooded, at an elevation of 685 feet; Adams County, Illinois; 1,900 feet east and 265 feet south of the northwest corner of sec. 3, T. 1 S., R. 5 W.; USGS Clayton, Illinois, topographic quadrangle; lat. 40 degrees 1 minute 5 seconds N. and long. 90 degrees 57 minutes 53 seconds W., NAD 27:

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many fine roots; neutral; abrupt smooth boundary.
A1—6 to 14 inches; very dark grayish brown (10YR

3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; common fine roots; neutral; clear smooth boundary.

A2—14 to 22 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; common fine roots; common fine faint brown (10YR 4/3) masses of iron throughout; neutral; clear smooth boundary.

A3—22 to 33 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; common fine roots; common fine faint brown (10YR 4/3) masses of iron throughout; neutral; clear smooth boundary.

C1—33 to 40 inches; 70 percent very dark grayish brown (10YR 3/2) and 20 percent dark brown (10YR 3/3), stratified silt loam; massive; friable; common fine roots; common fine and medium distinct yellowish brown (10YR 5/6) masses of iron and common fine and medium faint dark grayish brown (10YR 4/2) iron depletions throughout; slightly acid; clear smooth boundary.

C2—40 to 56 inches; 60 percent very dark grayish brown (10YR 3/2) and 30 percent dark brown (10YR 3/3), stratified silt loam; massive; friable; few fine roots; common fine and medium distinct yellowish brown (10YR 5/6) masses of iron and common medium faint dark grayish brown (10YR 4/2) iron depletions throughout; slightly acid; clear smooth boundary.

C3—56 to 75 inches; 80 percent very dark grayish brown (10YR 3/2) and 10 percent dark brown (10YR 3/3), stratified silt loam; massive; friable; few fine roots; common fine and medium distinct yellowish brown (10YR 5/6) and common medium prominent strong brown (7.5YR 5/8) masses of iron between peds and many medium faint dark grayish brown (10YR 4/2) iron depletions throughout; slightly acid; clear smooth boundary.

C4—75 to 80 inches; 80 percent dark grayish brown (10YR 4/2) and 10 percent very dark grayish brown (10YR 3/2), stratified silt loam; massive; friable; common medium and coarse prominent yellowish brown (10YR 5/6) and common fine prominent strong brown (7.5YR 5/8) masses of iron throughout and common fine faint dark gray (10YR 4/1) iron depletions throughout; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 36 inches

Ap or A horizon(s):
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam or silty clay loam

C horizon(s):
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—1 to 3
Texture—stratified silt loam or silty clay loam; strata containing more sand below a depth of 40 inches in some pedons

3451A—Lawson silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Lawson and similar soils: 91 percent
Dissimilar soils: 9 percent

Minor Components

Similar soils:
- Soils that have a thinner dark surface soil
- Soils that have a lighter colored surface soil
- Soils that have more sand throughout

Dissimilar soils:
- The well drained Terril soils on footslopes above the flood plains
- The poorly drained Sawmill soils in swales

Properties and Qualities of the Lawson Soil

Parent material: Alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: Frequent, November-June
Potential for frost action: High
Corrosivity: Moderate for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Lawson—3w

Prime farmland status: Lawson—prime farmland where protected from flooding or not frequently flooded during the growing season
Hydric soil status: Lawson—not hydric

Marine Series

Taxonomic classification: Fine, smectitic, mesic Aeric Albaqualfs

Typical Pedon (OSD)

Marine silt loam, 0 to 2 percent slopes, at an elevation of about 500 feet; Madison County, Illinois; approximately 2,030 feet east and 650 feet south of the northwest corner of sec. 21, T. 3 N., R. 5 W.; USGS St. Jacob, Illinois, topographic quadrangle; lat. 38 degrees 41 minutes 18 seconds N. and long. 89 degrees 46 minutes 14 seconds W., NAD 27:

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; many very fine roots; few very fine continuous tubular pores; few fine rounded black (N 2.5/0) nodules of iron and manganese; strongly acid; abrupt smooth boundary.

E—9 to 17 inches; light brownish gray (10YR 6/2) silt loam, white (10YR 8/1) dry; weak thin platy structure; friable; common very fine roots; few very fine continuous tubular pores; few fine prominent yellowish brown (10YR 5/8) masses of iron in the matrix; few fine rounded black (N 2.5/0) nodules of iron and manganese; very strongly acid; abrupt smooth boundary.

Bt1—17 to 25 inches; brown (10YR 4/3) silty clay; moderate medium prismatic structure parting to strong fine angular blocky; very firm; common very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions and few fine prominent yellowish brown (10YR 5/8) masses of iron in the matrix; common fine and medium rounded black (5YR 2.5/1) nodules of iron and manganese with clear strong brown (7.5YR 5/6) boundaries; very strongly acid; clear smooth boundary.

Bt2—25 to 34 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common fine distinct grayish brown (2.5Y 5/2) iron depletions and common medium prominent brownish yellow (10YR 6/8) masses of iron in the matrix; common fine and medium rounded dark reddish brown (5YR 2.5/2) nodules of iron and manganese with clear strong brown (7.5YR 5/6) boundaries; very strongly acid; clear smooth boundary.

Btg1—34 to 43 inches; grayish brown (10YR 5/2) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium distinct light olive brown (2.5Y 5/4) and common coarse prominent brownish yellow (10YR 6/8) masses of iron in the matrix; few medium rounded black (N 2.5/0) nodules of iron and manganese with strong brown (7.5YR 4/6) boundaries; very strongly acid; clear smooth boundary.

Btg2—43 to 52 inches; light grayish brown (2.5Y 6/2) silty clay loam; weak coarse prismatic structure; firm; few very fine roots; many faint grayish brown (2.5Y 5/2) clay films on faces of peds; common coarse prominent brownish yellow (10YR 6/8) and common medium prominent strong brown (7.5YR 5/8) masses of iron in the matrix; few fine and medium rounded black (10YR 2/1) nodules of iron and manganese with sharp boundaries; slightly acid; gradual smooth boundary.

BCtg—52 to 62 inches; light brownish gray (2.5Y 6/2) silt loam; weak coarse subangular blocky structure; friable; few faint grayish brown (2.5Y 5/2) clay films on vertical faces of peds and few distinct dark grayish brown (10YR 4/2) clay films in root channels and pores; common coarse prominent strong brown (7.5YR 5/8) masses of iron in the matrix; few fine and medium rounded black (10YR 2/1) nodules of iron and manganese with sharp boundaries; slightly acid; gradual smooth boundary.

2C—62 to 80 inches; brown (7.5YR 5/3) silt loam; massive; friable; many medium faint brown (7.5YR 5/2) iron depletions and many coarse distinct strong brown (7.5YR 5/6) masses of iron in the matrix; few fine irregular black (10YR 2/1) nodules of iron and manganese with sharp boundaries; about 8 percent sand; neutral.

Range in Characteristics

Depth to base of diagnostic horizon: 42 to more than 80 inches
Thickness of the loess: More than 55 inches

Ap horizon(s):
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 or 3

Texture—silt loam or silt

E horizon(s):
Hue—10YR
Value—5 to 7 (6 to 8 dry)
Chroma—1 or 2
Texture—silt or silt loam

Bt horizon(s):
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—3 or 4
Texture—silty clay loam or silty clay

Btg horizon(s):
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture—dominantly, silty clay loam or silty clay, but grades to silt loam in the lower part in some pedons

BCtg or BCg horizon(s), where present:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture—silty clay loam or silt loam

C or 2C horizon(s):
Hue—7.5YR, 10YR, or 2.5Y
Value—5 to 7
Chroma—1 to 3
Texture—silt loam, silty clay loam, clay loam, or loam

517A—Marine silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on landform: Summits

Map Unit Composition

Marine and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
• Soils that have less clay in the upper part of the subsoil
• Soils that have more sand in the lower part of the subsoil and in the underlying material
• Soils that have a seasonal high water table at a depth of more than 2 feet
• Soils that have a darker surface layer

Dissimilar soils:
• The poorly drained Pierron and Rushville soils in depressions and on toeslopes

Properties and Qualities of the Marine Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Marine—2w
Prime farmland status: Marine—prime farmland where drained
Hydric soil status: Marine—not hydric

517B—Marine silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on landform: Shoulders and summits

Map Unit Composition

Marine and similar soils: 100 percent

Minor Components

Similar soils:
• Soils that have less clay in the upper part of the subsoil
• Soils that have a seasonal high water table at a depth of more than 2 feet
• Soils that have more sand in the lower part of the subsoil and in the underlying material

Properties and Qualities of the Marine Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained

Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Marine—2e
Prime farmland status: Marine—prime farmland in all areas
Hydric soil status: Marine—not hydric

Martinsville Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Martinsville silt loam, 2 to 5 percent slopes, eroded, at an elevation of about 695 feet; Champaign County, Illinois; approximately 250 feet south and 1,430 feet east of the northwest corner of sec. 36, T. 21 N., R. 7 E.; USGS Rising topographic quadrangle; lat. 40 degrees 14 minutes 14 seconds N. and long. 88 degrees 21 minutes 37 seconds W., NAD 83:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak very fine and fine granular structure; friable; common very fine roots; moderately acid; abrupt smooth boundary.

BE—9 to 12 inches; yellowish brown (10YR 5/4) silt loam; moderate fine angular blocky structure; friable; common very fine roots; few faint brown (10YR 4/3) clay films on faces of peds; strongly acid; clear smooth boundary.

Bt1—12 to 19 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium prismatic structure parting to strong fine angular blocky; firm; common very fine roots; common distinct dark brown (10YR 3/3) organo-clay films on faces of peds; common distinct brown (10YR 4/3) clay films on faces of peds; few fine distinct yellowish brown (10YR 5/6) masses of iron in the matrix; moderately acid; clear smooth boundary.

Bt2—19 to 28 inches; strong brown (7.5YR 4/6) clay loam; weak medium prismatic structure parting to strong medium angular blocky; firm; many very fine roots; many distinct dark brown (7.5YR 3/4) clay films on faces of peds and in pores; few fine faint yellowish brown (10YR 5/6) masses of iron in the matrix; few fine rounded black (7.5YR 2.5/1) very weakly cemented nodules of iron and manganese throughout; moderately acid; clear smooth boundary.

Bt3—28 to 36 inches; strong brown (7.5YR 4/6) sandy clay loam; moderate medium and coarse angular blocky structure; firm; common very fine roots; many distinct dark brown (7.5YR 3/4) clay films on faces of peds and in pores; few fine faint yellowish brown (10YR 5/6) masses of iron in the matrix; few fine rounded black (7.5YR 2.5/1) very weakly cemented nodules of iron and manganese throughout; moderately acid; clear smooth boundary.

Bt4—36 to 45 inches; yellowish brown (10YR 5/4) sandy clay loam; weak coarse angular blocky structure; firm; few very fine roots; many distinct dark brown (10YR 3/3) organo-clay films on faces of peds; few fine distinct yellowish brown (10YR 5/6) masses of iron in the matrix; common fine rounded black (7.5YR 2.5/1) very weakly cemented nodules of iron and manganese throughout; moderately acid; abrupt smooth boundary.

Bt5—45 to 57 inches; yellowish brown (10YR 5/4), stratified silt loam; weak coarse angular blocky structure; friable; common distinct brown (10YR 4/3) clay films on faces of peds; common fine distinct yellowish brown (10YR 5/6) masses of iron in the matrix; common fine rounded black (7.5YR 2.5/1) very weakly cemented nodules of iron and manganese throughout; moderately acid; abrupt smooth boundary.

Bt6—57 to 69 inches; yellowish brown (10YR 5/4), stratified silt loam, loam, and sandy loam; weak coarse angular blocky structure; friable; few distinct brown (10YR 4/3) clay films on vertical faces of peds; common fine distinct yellowish brown (10YR 5/6) masses of iron in the matrix; common fine faint pale brown (10YR 6/3) iron depletions in the matrix; common fine rounded black (7.5YR 2.5/1) very weakly cemented nodules of iron and manganese throughout; moderately acid; clear smooth boundary.

C—69 to 80 inches; light yellowish brown (10YR 6/4), stratified loam and sandy loam; massive; friable; slightly acid.

Range in Characteristics

Depth to base of diagnostic horizon: 40 to 70 inches
Thickness of the loess: Less than 20 inches

Ap or A horizon:
Hue—10YR
Value—3 to 5; 3 in horizons less than 6 inches thick
Chroma—2 to 6
Texture—silt loam, sandy loam, or loam

E horizon, where present:
Hue—10YR
Value—4
Chroma—3
Texture—silt loam or loam

BE or Bt horizon:
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—3 to 6
Texture—clay loam, sandy clay loam, silty clay loam, silt loam, loam, sandy loam, fine sandy loam, or very fine sandy; stratified with these textures in some pedons

C or 2C horizon:
Hue—10YR
Value—3 to 6
Chroma—3 to 6
Texture—stratified fine sandy loam, sandy loam, loam, or silt loam with thin strata of fine sand, loamy sand, loamy fine sand, very fine sandy loam, coarse sand, or sand

570D2—Martinsville sandy loam, 10 to 18 percent slopes, eroded

Setting

Landform: Stream terraces
Position on landform: Risers

Map Unit Composition

Martinsville and similar soils: 92 percent
Dissimilar soils: 8 percent

Minor Components

Similar soils:
• Soils that have more clay in the surface layer
• Soils that have less sand in the upper part of the subsoil
• Soils that have a seasonal high water table within a depth of 6 feet
• Soils that have less clay in the upper part of the subsoil

Dissimilar soils:
• The somewhat poorly drained Clarksdale and Keomah soils on the broad summits of terraces
• The well drained Rozetta soils on the summits and shoulders of terraces

Properties and Qualities of the Martinsville Soil

Parent material: Outwash
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Seasonal high water table: At a depth of more than 6 feet
Flooding: None
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Moderately high

Interpretive Groups

Land capability classification: Martinsville—4e
Prime farmland status: Martinsville—not prime farmland
Hydric soil status: Martinsville—not hydric

Oconee Series

Taxonomic classification: Fine, smectitic, mesic Udollic Endoaqualfs

Typical Pedon (OSD)

Oconee silt loam, 2 to 5 percent slopes, at an elevation of about 560 feet; Madison County, Illinois; approximately 1,315 feet east and 2,245 feet north of the southwest corner of sec. 29, T. 5 N., R. 5 W.; USGS Grantfork, Illinois, topographic quadrangle; lat. 38 degrees 50 minutes 58 seconds N. and long. 89 degrees 41 minutes 17 seconds W., NAD 27:

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam,

grayish brown (10YR 5/2) dry; weak medium granular structure grading to weak thin platy in the lower part; very friable; common very fine roots; few fine rounded black (10YR 2/1) nodules of iron and manganese; slightly acid; abrupt smooth boundary.

Eg1—8 to 12 inches; dark grayish brown (10YR 4/2) silt loam, light gray (10YR 7/2) dry; moderate thick platy structure; very friable; few very fine roots; many distinct brown (10YR 5/3) clay depletions in pores; many distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; few fine distinct dark yellowish brown (10YR 4/4) masses of iron in the matrix; few fine and medium irregular very dark gray (5YR 3/1) nodules of iron and manganese; moderately acid; clear smooth boundary.

Eg2—12 to 16 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; moderate fine and medium subangular blocky structure; friable; few very fine roots; many distinct brown (10YR 5/3) clay depletions in pores; many distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; common fine distinct yellowish brown (10YR 5/6) masses of iron in the matrix; few fine and medium rounded dark brown (7.5YR 3/2) nodules of iron and manganese; moderately acid; clear smooth boundary.

Bt/E—16 to 21 inches; brown (10YR 5/3) silty clay loam; strong very fine subangular blocky structure; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds and many prominent light brownish gray (10YR 6/2) clay depletions on faces of peds and in pores; many medium prominent strong brown (7.5YR 5/6) and few fine faint dark yellowish brown (10YR 4/4) masses of iron in the matrix; few fine and medium rounded dark brown (7.5YR 3/2) nodules of iron and manganese; strongly acid; clear irregular boundary.

Bt—21 to 29 inches; brown (10YR 5/3) silty clay; moderate medium prismatic structure parting to strong fine and medium angular blocky; very firm; few very fine roots between peds; many prominent dark grayish brown (10YR 4/2) clay films on faces of peds; common medium faint grayish brown (10YR 5/2) iron depletions and common medium prominent strong brown (7.5YR 5/8) masses of iron in the matrix; common fine and medium rounded black (5YR 2.5/1) nodules of iron and manganese; strongly acid; clear smooth boundary.

Btg1—29 to 38 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots between peds; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium prominent strong brown (7.5YR 5/8) and common coarse prominent brownish yellow (10YR 6/8) masses of iron in the matrix; common fine and medium rounded black (5YR 2.5/1) nodules of iron and manganese; strongly acid; clear smooth boundary.

Btg2—38 to 47 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium prominent light olive brown (2.5Y 5/6) and yellowish brown (10YR 5/8) and few medium prominent strong brown (7.5YR 5/6) masses of iron in the matrix; common fine and medium irregular black (5YR 2.5/1) nodules of iron and manganese with clear strong brown (7.5YR 5/6) boundaries; moderately acid; clear smooth boundary.

Btg3—47 to 58 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak coarse prismatic structure; firm; few fine pores between peds; many prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels and filling pores; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium and coarse prominent yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8) masses of iron in the matrix; common fine and medium irregular black (5YR 2.5/1) nodules of iron and manganese with clear strong brown (7.5YR 5/6) boundaries; moderately acid; clear smooth boundary.

C1—58 to 65 inches; brown (10YR 5/3) silt loam; massive; friable; few vertical cleavage planes; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of cleavage planes; many medium prominent yellowish brown (10YR 5/8) and common medium prominent strong brown (7.5YR 5/6) masses of iron in the matrix; few fine and medium irregular black (5YR 2.5/1) nodules of iron and manganese with clear strong brown (7.5YR 5/6) boundaries; slightly acid; gradual smooth boundary.

C2—65 to 80 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; few prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels and filling pores; few fine distinct (10YR 5/2) iron depletions and few medium

distinct yellowish brown (10YR 5/8) masses of iron in the matrix; few medium irregular black (10YR 2/1) nodules of iron and manganese; neutral.

Range in Characteristics

Depth to base of diagnostic horizon: 42 to more than 80 inches
Thickness of the loess: More than 55 inches

Ap or A horizon(s):
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—typically, 1 or 2, but 3 in some eroded pedons
Texture—silt loam

E horizon(s):
Hue—10YR
Value—4 to 7 (6 to 8 dry)
Chroma—typically, 1 or 2; in some pedons chroma of 3 accompanied by redoximorphic features
Texture—silt loam

Bt and/or Btg horizon(s):
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—silty clay loam or silty clay in the upper part and silty clay loam or silt loam in the lower part

BC or CB horizon(s), where present:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—silty clay loam or silt loam

C or 2C horizon(s), where present:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—1 to 8
Texture—silt loam, silty clay loam, clay loam, or loam

113A—Oconee silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on landform: Summits

Map Unit Composition

Oconee and similar soils: 94 percent
Dissimilar soils: 6 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils that have a thicker dark surface soil
- Soils that have a lighter colored surface layer

Dissimilar soils:
- The poorly drained Cowden and Piasa soils in depressions and on toeslopes

Properties and Qualities of the Oconee Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Oconee—2w
Prime farmland status: Oconee—prime farmland where drained
Hydric soil status: Oconee—not hydric

113B—Oconee silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on landform: Summits and shoulders

Map Unit Composition

Oconee and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have a thicker dark surface soil
- Soils that have a lighter colored surface layer

• Soils that have a seasonal high water table at a depth of more than 2 feet

Properties and Qualities of the Oconee Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Oconee—2e
Prime farmland status: Oconee—prime farmland in all areas
Hydric soil status: Oconee—not hydric

882B—Oconee-Coulterville-Darmstadt silt loams, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on landform: Oconee—summits; Coulterville and Darmstadt—summits and backslopes

Map Unit Composition

Oconee and similar soils: 35 percent
Coulterville and similar soils: 30 percent
Darmstadt and similar soils: 20 percent
Dissimilar soils: 15 percent

Minor Components

Similar soils:
• Soils that have more sand in the subsoil

Dissimilar soils:
• The somewhat poorly drained Herrick and Marine soils on broad summits
• The poorly drained Burksville soils on summits and shoulders

Properties and Qualities of the Oconee Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Properties and Qualities of the Coulterville Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Content of sodium: Moderate within a depth of 30 inches
Available water capacity: About 9.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Erosion: The surface layer is less eroded than the surface layer in the typical pedon of the series description.
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Properties and Qualities of the Darmstadt Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow

Depth to restrictive feature: More than 80 inches
Content of sodium: High within a depth of 30 inches
Available water capacity: About 8.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Oconee and Coulterville—2e; Darmstadt—3e
Prime farmland status: Oconee, Coulterville, and Darmstadt—not prime farmland
Hydric soil status: Oconee, Coulterville, and Darmstadt—not hydric

802B—Orthents, loamy, undulating

Setting

This map unit is in cut and fill and borrow areas where the soils have been disturbed, mainly around slurry pits and coal-mining sites. The unit is on ground moraines.

Map Unit Composition

Orthents: 85 percent
Dissimilar components: 15 percent

Minor Components

Dissimilar components:
- The somewhat poorly drained Herrick soils in undisturbed areas
- The well drained Rozetta soils in undisturbed areas
- Rock piles, access roads, buildings, parking lots, and water areas less than 3 acres in size

Properties and Qualities of the Orthents

Parent material: Mine spoil or earthy fill consisting of loamy material derived from former soil layers and underlying material
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Seasonal high water table: At a depth of more than 6 feet
Flooding: None
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Orthents—2e
Prime farmland status: Orthents—not prime farmland
Hydric soil status: Orthents—not hydric

802E—Orthents, loamy, hilly

Setting

This map unit is in cut and fill and borrow areas where the soils have been disturbed, mainly around slurry pits and coal-mining sites. The unit is on ground moraines.

Map Unit Composition

Orthents: 85 percent
Dissimilar components: 15 percent

Minor Components

Dissimilar components:
- The somewhat poorly drained Herrick soils in undisturbed areas
- The well drained Hickory and Rozetta soils in undisturbed areas
- Rock piles, access roads, buildings, parking lots, and water areas less than 3 acres in size

Properties and Qualities of the Orthents

Parent material: Mine spoil or earthy fill consisting of loamy material derived from former soil layers and underlying material
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Seasonal high water table: At a depth of more than 6 feet
Flooding: None
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Moderate

Interpretive Groups

Land capability classification: Orthents—6e
Prime farmland status: Orthents—not prime farmland
Hydric soil status: Orthents—not hydric

Otter Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls

Typical Pedon

Otter silt loam, 0 to 2 percent slopes, frequently flooded; at an elevation of about 655 feet; Whiteside County, Illinois; 1,960 feet west and 2,540 feet south of the northeast corner of sec. 35, T. 22 N., R. 5 E.; USGS Morrison topographic quadrangle; lat. 41 degrees 51 minutes 06 seconds N. and long. 89 degrees 53 minutes 18 seconds W., NAD 27:

Ap—0 to 10 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; slightly acid; abrupt smooth boundary.
A1—10 to 16 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; weak fine subangular blocky structure parting to moderate medium granular; friable; slightly acid; clear smooth boundary.
A2—16 to 21 inches; black (N 2/0) silt loam, very dark gray (10YR 3/1) dry; weak fine subangular blocky structure parting to moderate medium granular; friable; few fine prominent grayish brown (2.5Y 5/2) iron depletions and few fine prominent yellowish brown (10YR 5/8) masses of iron in the matrix; few fine faint dark reddish brown (5YR 2.5/2) coatings of iron on faces of peds; slightly acid; clear smooth boundary.
A3—21 to 35 inches; black (N 2/0) mucky silt loam, black (N 2/0) dry; weak medium subangular blocky structure; friable; few fine prominent strong brown (7.5YR 4/6) masses of iron in the matrix; few fine faint dark reddish brown (5YR 2.5/2) coatings of iron on faces of peds; slightly acid; clear smooth boundary.
AB—35 to 43 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak coarse subangular blocky structure; friable; few fine faint dark reddish brown (5YR 2.5/2) coatings of iron on faces of peds; common medium faint dark gray (10YR 4/1) iron depletions and few fine prominent brown (7.5YR 4/4) masses of iron in the matrix; neutral; clear smooth boundary.
Bg—43 to 50 inches; grayish brown (2.5Y 5/2) silt loam; weak coarse subangular blocky structure; friable; few distinct very dark grayish brown (10YR 3/2) organic coatings in root channels; common medium prominent yellowish brown (10YR 5/6) and few medium prominent brown (7.5YR 4/4) masses of iron in the matrix; neutral; clear smooth boundary.
Cg—50 to 60 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; common fine prominent yellowish brown (10YR 5/6) masses of iron in the matrix; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 50 inches
Depth to base of diagnostic horizon: 24 to 50 inches

Ap, A, or AB horizon:
Hue—7.5YR, 10YR, 2.5Y, or neutral
Value—2 or 3
Chroma—0 to 2
Texture—silt loam, mucky silt loam, loam, or silty clay loam

Bg horizon:
Hue—7.5YR, 10YR, 2.5Y, or neutral
Value—2 to 6
Chroma—0 to 4
Texture—silt loam, loam, sandy loam, or silty clay loam

Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—2 to 6
Chroma—0 or 4
Texture—dominantly, silt loam or loam; strata of silty clay loam or sandy loam in some pedons

3076A—Otter silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Otter and similar soils: 100 percent

Minor Components

Similar soils:
• Soils that have a seasonal high water table at a depth of more than 1 foot
• Soils that have more clay throughout
• Soils that have a thinner surface soil

Properties and Qualities of the Otter Soil

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 13.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 5.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: Frequent, November-June
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Otter—3w
Prime farmland status: Otter—prime farmland where drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil status: Otter—hydric

Piasa Series

Taxonomic classification: Fine, smectitic, mesic Mollic Natraqualfs

Typical Pedon (OSD)

Piasa silt loam, 0 to 2 percent slopes, at an elevation of about 630 feet; Montgomery County, Illinois; approximately 277 feet west and 85 feet south of the northeast corner of sec. 26, T. 9 N., R. 4 W.; USGS Hillsboro, Illinois, topographic quadrangle; lat. 39 degrees 12 minutes 8 seconds N. and long. 89 degrees 29 minutes 37 seconds W., NAD 27:

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak fine granular structure; friable; common very fine roots; few fine and medium black (5YR 2.5/1) nodules of iron and manganese; neutral; abrupt smooth boundary.

Eg—8 to 12 inches; dark gray (10YR 4/1) silt loam, gray (10YR 6/1) dry; moderate thin and medium platy structure; friable; few very fine roots; light gray (10YR 7/1 dry) clay depletions on faces of peds; few prominent black (10YR 2/1) organic coatings filling pores; common fine and medium black (5YR 2.5/1) nodules of iron and manganese; slightly alkaline; abrupt wavy boundary.

Btng—12 to 16 inches; dark grayish brown (2.5Y 4/2) silty clay loam; weak very coarse columnar structure parting to moderate fine angular blocky; firm; few very fine roots; common distinct gray (10YR 6/1 dry) clay depletions on the slightly rounded caps of the columns and on the faces of the columns; common prominent black (10YR 2/1) organic coatings lining root channels and filling pores; many distinct dark gray (10YR 4/1) clay films on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) and few fine prominent strong brown (7.5YR 4/6) masses of iron in the matrix; slightly alkaline; clear smooth boundary.

Btkng1—16 to 20 inches; dark grayish brown (2.5Y 4/2) silty clay; weak very coarse prismatic structure parting to moderate medium and coarse angular blocky; firm; few very fine roots; few prominent black (10YR 2/1) organic coatings lining root channels and filling pores; common distinct dark gray (10YR 4/1) clay films on faces of peds; few fine distinct dark yellowish brown (10YR 4/4) and few fine prominent strong brown (7.5YR 4/6) masses of iron in the matrix; few fine and medium very dark grayish brown (2.5Y 3/2) and black (10YR 2/1) nodules of iron and manganese and few medium rounded white (10YR 8/1) carbonate concretions; slightly effervescent; slightly alkaline; clear smooth boundary.

Btkng2—20 to 26 inches; dark grayish brown (2.5Y 4/2) silty clay; weak very coarse prismatic structure parting to moderate medium and coarse angular blocky; firm; few very fine roots; few prominent black (10YR 2/1) organic coatings lining root channels and filling pores; common distinct dark gray (10YR 4/1) clay films on faces of peds; common fine distinct olive brown (2.5Y 4/4) and few fine prominent strong brown (7.5YR 5/6) masses of iron in the matrix; few fine and medium black (10YR 2/1) nodules of iron and

manganese and common medium and coarse white (10YR 8/1) carbonate concretions; slightly effervescent; moderately alkaline; clear smooth boundary.

Btkng3—26 to 33 inches; dark grayish brown (2.5Y 4/2) silty clay loam; weak very coarse prismatic structure parting to weak and moderate medium angular blocky; firm; few very fine roots; common distinct dark gray (10YR 4/1) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) and few fine prominent strong brown (7.5YR 5/8) masses of iron in the matrix; common fine and medium black (10YR 2/1) nodules of iron and manganese with clear strong brown (7.5YR 5/6) boundaries; common medium and coarse white (10YR 8/1) carbonate concretions; slightly effervescent; moderately alkaline; clear smooth boundary.

Btkng4—33 to 37 inches; dark grayish brown (2.5Y 4/2) silty clay loam; weak very coarse prismatic structure parting to weak coarse angular blocky; friable; few very fine roots; few distinct dark gray (10YR 4/1) clay films on faces of peds; many medium and coarse prominent yellowish brown (10YR 5/8) masses of iron in the matrix; few fine and medium black (10YR 2/1) nodules of iron and manganese with clear strong brown (7.5YR 5/6) boundaries; few medium white (10YR 8/1) carbonate concretions; slightly effervescent; slightly alkaline; clear smooth boundary.

BCg—37 to 48 inches; grayish brown (2.5Y 5/2) silt loam; weak coarse angular blocky structure; friable; few very fine roots; few faint gray (10YR 5/1) clay films on vertical faces of peds; many coarse prominent yellowish brown (10YR 5/6) and common fine and medium prominent strong brown (7.5YR 5/6) masses of iron in the matrix; few fine black (10YR 2/1) nodules of iron and manganese with sharp boundaries; slightly alkaline; clear smooth boundary.

2Btgb1—48 to 62 inches; gray (10YR 5/1) silt loam; moderate fine and medium prismatic structure parting to weak medium angular blocky; friable; few prominent very dark gray (10YR 3/1) organic coatings lining root channels and filling pores and many distinct dark gray (10YR 4/1) clay films on faces of peds; many coarse prominent yellowish brown (10YR 5/8) and reddish brown (5YR 4/4) masses of iron in the matrix; few medium and coarse black (10YR 2/1) nodules of iron and manganese with diffuse strong brown (7.5YR 5/6) boundaries; 1 percent gravel; slightly alkaline; gradual smooth boundary.

2Btgb2—62 to 80 inches; grayish brown (10YR 5/2) clay loam; moderate medium prismatic structure parting to weak medium angular blocky; firm; few prominent very dark gray (10YR 3/1) organic coatings lining root channels and filling pores and common distinct dark gray (10YR 4/1) clay films on faces of peds; many medium and coarse prominent yellowish brown (10YR 5/8) and few fine and medium prominent strong brown (7.5YR 5/6) masses of iron in the matrix; about 5 percent gravel; neutral.

Range in Characteristics

Depth to base of diagnostic horizon: 40 to more than 60 inches
Thickness of the loess: 40 to 72 inches

Ap horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam

Eg horizon:
Hue—10YR
Value—4 or 5
Chroma—1 or 2
Texture—silt loam

Btg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silty clay loam or silty clay

BCg, Cg, 2Btgb, or 2Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silt loam, silty clay loam, loam, or clay loam

894A—Herrick-Biddle-Piasa silt loams, 0 to 2 percent slopes

Setting

Landform: Ground moraines (fig. 3)
Position on landform: Herrick and Biddle—summits; Piasa—summits and toeslopes

Map Unit Composition

Herrick and similar soils: 45 percent
Biddle and similar soils: 35 percent
Piasa and similar soils: 20 percent

Minor Components

Similar soils:
- Soils that have a lighter colored surface soil
- Soils that have a thinner surface layer

Properties and Qualities of the Herrick Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 4.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Properties and Qualities of the Biddle Soil

Parent material: Loess over silty pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Content of sodium: Moderate within a depth of 30 inches
Available water capacity: About 11.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: High
Perched seasonal high water table: 1 to 2 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Properties and Qualities of the Piasa Soil

Parent material: Loess over silty pedisediment
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Content of sodium: High within a depth of 30 inches
Available water capacity: About 7.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: High
Perched seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Herrick and Biddle—2w; Piasa—3w
Prime farmland status: Herrick, Biddle, and Piasa—not prime farmland
Hydric soil status: Herrick and Biddle—not hydric; Piasa—hydric

993A—Cowden-Piasa silt loams, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on landform: Toeslopes

Map Unit Composition

Cowden and similar soils: 55 percent
Piasa and similar soils: 45 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 1 foot
- Soils that have a lighter colored surface layer
- Soils that have a thicker dark surface layer

Properties and Qualities of the Cowden Soil

Parent material: Loess over silty pedisediment
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Properties and Qualities of the Piasa Soil

Parent material: Loess over silty pedisediment
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Content of sodium: High within a depth of 30 inches
Available water capacity: About 7.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: High
Perched seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Cowden and Piasa—3w
Prime farmland status: Cowden and Piasa—not prime farmland
Hydric soil status: Cowden and Piasa—hydric

Pierron Series

Taxonomic classification: Fine, smectitic, mesic Typic Albaqualfs

Typical Pedon (OSD)

Pierron silt loam, 0 to 2 percent slopes, at an elevation of about 540 feet; Madison County, Illinois; approximately 1,730 feet east and 80 feet south of the northwest corner of sec. 14, T. 4 N., R. 6 W.; USGS Grantfork, Illinois, topographic quadrangle; lat. 38 degrees 48 minutes 2 seconds N. and long. 89 degrees 44 minutes 19 seconds W., NAD 27:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; very friable; many very fine and common fine roots; many distinct light brownish gray (10YR 6/2 dry) clay depletions on faces of peds; few fine rounded black (5YR 2.5/1) nodules of iron and manganese; slightly acid; abrupt smooth boundary.
Eg1—8 to 12 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak thin platy structure; very friable; few very fine roots; common distinct light gray (10YR 7/1 dry) clay depletions on faces of peds; few medium distinct yellowish brown (10YR 5/4) masses of iron in the matrix; many fine and medium rounded reddish brown (5YR 4/4) and dark reddish brown (5YR 2.5/2) nodules of iron and manganese; moderately acid; clear smooth boundary.
Eg2—12 to 20 inches; light brownish gray (10YR 6/2) silt loam, light gray (10YR 7/1) dry; moderate thick platy structure parting to weak fine subangular blocky; very friable; few very fine roots; many distinct white (10YR 8/1 dry) clay depletions on faces of peds; few distinct very dark grayish brown (10YR 3/2) organo-clay films lining root channels; common medium distinct light olive brown (2.5Y 5/4) and few fine distinct dark yellowish brown (10YR 4/4) masses of iron in the matrix; common medium rounded black (5YR 2.5/1) nodules of iron and manganese with clear reddish brown (5YR 4/4) boundaries; strongly acid; abrupt smooth boundary.
Btg1—20 to 29 inches; light brownish gray (2.5Y 6/2) silty clay; moderate medium prismatic structure parting to strong fine and medium angular blocky; very firm; few very fine roots; few prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels; many prominent grayish brown (2.5Y 5/2) clay films on faces of peds; common medium distinct yellowish brown (10YR 5/4) and few fine distinct light olive brown (2.5Y 5/4) masses of iron in the matrix; common medium rounded dark reddish brown (5YR 2.5/2) nodules of iron and manganese with clear strong brown (7.5YR 4/6) boundaries; very strongly acid; clear smooth boundary.
Btg2—29 to 36 inches; light brownish gray (2.5Y 6/2) silty clay; strong medium prismatic structure

parting to moderate medium angular blocky; very firm; common prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels; many prominent grayish brown (2.5Y 5/2) clay films on faces of peds; common coarse prominent yellowish brown (10YR 5/6) masses of iron in the matrix; common medium rounded dark reddish brown (5YR 2.5/2) nodules of iron and manganese with clear strong brown (7.5YR 4/6) boundaries; very strongly acid; clear smooth boundary.

Btg3—36 to 44 inches; light brownish gray (2.5Y 6/2) silty clay loam; moderate coarse prismatic structure parting to moderate medium angular blocky; very firm; common prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels; many distinct grayish brown (2.5Y 5/2) clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/6) masses of iron in the matrix; common medium rounded black (5YR 2.5/1) nodules of iron and manganese with clear strong brown (7.5YR 4/6) boundaries; strongly acid; clear smooth boundary.

Btg4—44 to 55 inches; light olive gray (5Y 6/2) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; common distinct dark gray (10YR 4/1) clay films lining root channels and common distinct grayish brown (2.5Y 5/2) clay films on faces of peds; common coarse prominent strong brown (7.5YR 5/6) and common medium prominent light olive brown (2.5Y 5/6) masses of iron in the matrix; common medium rounded black (5YR 2.5/1) nodules of iron and manganese with clear strong brown (7.5YR 4/6) boundaries; moderately acid; gradual smooth boundary.

Btg5—55 to 66 inches; light olive gray (5Y 6/2) silty clay loam; weak coarse prismatic structure; friable; common distinct grayish brown (2.5Y 5/2) clay films on faces of peds; common medium prominent brownish yellow (10YR 6/8) and yellowish brown (10YR 5/8) masses of iron in the matrix; few fine irregular black (5YR 2.5/1) nodules and common fine and medium irregular strong brown (7.5YR 5/6) masses of iron and manganese; slightly acid; clear smooth boundary.

2Cg—66 to 80 inches; grayish brown (2.5Y 5/2) silt loam; massive; friable; common fine and medium prominent brownish yellow (10YR 6/6) masses of iron in the matrix; few fine and medium irregular black (10YR 2/1) masses of iron and manganese with diffuse strong brown (7.5YR 4/6) boundaries; about 10 percent sand; neutral.

Range in Characteristics

Depth to base of diagnostic horizon: 50 to more than 80 inches
Thickness of the loess: 55 to 80 inches

Ap or A horizon(s):
Hue—10YR
Value—3 to 5 (5 to 7 dry)
Chroma—1 or 2
Texture—silt loam

Eg horizon(s):
Hue—10YR or 2.5Y
Value—5 or 6 (6 to 8 dry)
Chroma—1 or 2
Texture—silt loam or silt

Btg horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silty clay loam or silty clay

BCg horizon(s), where present:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silty clay loam or silt loam

Cg or 2Cg horizon(s):
Hue—7.5YR, 10YR, 2.5Y, 5Y, or neutral
Value—4 to 7
Chroma—0 to 2
Texture—silt loam, loam, silty clay loam, or clay loam

31A—Pierron silt loam, 0 to 2 percent slopes

Setting

Landform: Depressions on ground moraines
Position on landform: Summits

Map Unit Composition

Pierron and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 1 foot
- Soils that have a darker surface layer
- Soils that have less clay in the upper part of the subsoil

Dissimilar soils:
• The somewhat poorly drained Darmstadt soils on summits and shoulders
• The moderately well drained Homen soils on narrow summits and shoulders
• The poorly drained Burksville soils in depressions and on summits

Properties and Qualities of the Pierron Soil

Parent material: Loess over silty pedisediment
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow to moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Pierron—3w
Prime farmland status: Pierron—not prime farmland
Hydric soil status: Pierron—hydric

Rozetta Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon (OSD)

Rozetta silt loam, 0 to 2 percent slopes, at an elevation of 890 feet; Stephenson County, Illinois; 150 feet south and 500 feet east of the center of sec. 18, T. 27 N., R. 6 E.; USGS Pearl City quadrangle; lat. 42 degrees 20 minutes 00 seconds N. and long. 89 degrees 51 minutes 19 seconds W., NAD 27:

A—0 to 4 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 6/1) dry; weak medium granular structure; friable; many fine roots throughout; moderately acid; clear wavy boundary.
E—4 to 11 inches; dark grayish brown (10YR 4/2) silt loam; weak medium platy structure; friable; many fine roots throughout; strongly acid; clear smooth boundary.
BE—11 to 14 inches; brown (10YR 4/3) silty clay loam; weak medium subangular blocky structure; firm; many fine roots between peds; few faint brown (10YR 5/3 dry) clay depletions on faces of peds; strongly acid; clear smooth boundary.
Bt1—14 to 21 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; many fine roots between peds; many faint brown (10YR 5/3) clay films on faces of peds; strongly acid; clear smooth boundary.
Bt2—21 to 39 inches; brown (10YR 5/3) silty clay loam; moderate medium and coarse subangular blocky structure; firm; common fine roots; many faint dark yellowish brown (10YR 4/4) clay films on faces of peds; common faint pale brown (10YR 6/3 dry) silt coatings on faces of peds; few medium faint grayish brown (10YR 5/2) iron depletions in the matrix; common medium faint light yellowish brown (10YR 6/4) and brown (10YR 4/3) masses of iron in the matrix; strongly acid; clear smooth boundary.
Bt3—39 to 50 inches; yellowish brown (10YR 5/4) silty clay loam; weak coarse subangular blocky structure; firm; common fine roots; few faint brown (10YR 4/3) clay films on faces of peds; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; common medium faint pale brown (10YR 6/3) masses of iron in the matrix; moderately acid; clear smooth boundary.
C—50 to 60 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; common medium distinct dark grayish brown (10YR 4/2) iron depletions in the matrix; slightly acid.

Range in Characteristics

Depth to base of diagnostic horizon: 42 to 72 inches

Ap or A horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 3
Texture—silt loam

E horizon, where present:
Hue—10YR
Value—4 to 6
Chroma—2 or 3
Texture—silt loam

Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6

Chroma—3 to 6
Texture—silty clay loam

C horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 6
Texture—silt loam or silty clay loam

279A—Rozetta silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on landform: Summits

Map Unit Composition

Rozetta and similar soils: 98 percent
Dissimilar soils: 2 percent

Minor Components

Similar soils:
• Soils that have a thinner surface soil
• Soils that have more sand in the lower part of the subsoil and in the underlying material
• Soils that have a seasonal high water table at a depth of more than 6 feet
• Soils that have darker surface layer

Dissimilar soils:
• The somewhat poorly drained Clarksdale soils on broad summits
• The somewhat poorly drained Keomah soils on broad summits and shoulders

Properties and Qualities of the Rozetta Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 4 to 6 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Rozetta—1
Prime farmland status: Rozetta—prime farmland in all areas
Hydric soil status: Rozetta—not hydric

279B—Rozetta silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines (fig. 4)
Position on landform: Summits and shoulders

Map Unit Composition

Rozetta and similar soils: 93 percent
Dissimilar soils: 7 percent

Minor Components

Similar soils:
• Soils that have a thinner surface layer
• Soils that have a seasonal high water table at a depth of more than 6 feet
• Soils that have more sand in the lower part of the subsoil and in the underlying material
• Soils that have dark surface layer

Dissimilar soils:
• The somewhat poorly drained Clarksdale and Keomah soils on broad summits
• The well drained Hickory soils on backslopes

Properties and Qualities of the Rozetta Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 4 to 6 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: Moderate for steel and concrete
Surface runoff class: Low

Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Rozetta—2e
Prime farmland status: Rozetta—prime farmland in all areas
Hydric soil status: Rozetta—not hydric

279C2—Rozetta silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines (fig. 4)
Position on landform: Shoulders and backslopes

Map Unit Composition

Rozetta and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that have a seasonal high water table at a depth of more than 6 feet
- Soils that have more sand in the lower part of the subsoil and in the underlying material

Dissimilar soils:
- The well drained Hickory soils on the lower backslopes

Properties and Qualities of the Rozetta Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 4 to 6 feet below the surface
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Corrosivity: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Rozetta—3e
Prime farmland status: Rozetta—not prime farmland
Hydric soil status: Rozetta—not hydric

9279B—Rozetta silt loam, terrace, 2 to 5 percent slopes

Setting

Landform: Terraces
Position on landform: Summits and shoulders

Map Unit Composition

Rozetta and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table within a depth of 4 feet
- Soils that have more sand in the lower part of the subsoil and in the underlying material

Dissimilar soils:
- The somewhat poorly drained Clarksdale and Keomah soils on the summits of broad terraces
- The poorly drained Sawmill soils in depressions and swales

Properties and Qualities of the Rozetta Soil

Parent material: Loess or other silty material
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 4 to 6 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Rozetta—2e

Prime farmland status: Rozetta—prime farmland in all areas
Hydric soil status: Rozetta—not hydric

Rushville Series

Taxonomic classification: Fine, smectitic, mesic Typic Albaqualfs

Typical Pedon (OSD)

Rushville silt loam, 0 to 2 percent slopes, at an elevation of 695 feet; Adams County, Illinois; 2,150 feet east and 250 feet south of the northwest corner of sec. 23, T. 1 S., R. 6 W.; USGS Liberty, Illinois, topographic quadrangle; lat. 39 degrees 58 minutes 29 seconds N. and long. 91 degrees 3 minutes 37 seconds W., NAD 27:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light gray (10YR 7/2) dry; weak fine prismatic structure parting to moderate fine granular; friable; common fine roots; many fine distinct black (2.5Y 2/1) masses of iron and manganese throughout, few fine and medium distinct black (2.5Y 2/1) nodules of iron and manganese throughout, and many distinct very pale brown (10YR 8/2) clay depletions between peds; neutral; clear smooth boundary.

Eg—7 to 13 inches; grayish brown (10YR 5/2) silt loam, very pale brown (10YR 8/2) dry; weak thick platy structure parting to moderate medium subangular blocky; friable; common fine roots; common fine distinct yellowish brown (10YR 5/4) masses of iron throughout, many fine prominent black (2.5Y 2/1) nodules of iron and manganese throughout, and many distinct white (10YR 8/1) clay depletions throughout; neutral; clear smooth boundary.

Btg1—13 to 21 inches; light brownish gray (10YR 6/2) silty clay loam; moderate medium prismatic structure parting to moderate fine subangular blocky; friable; common fine and medium roots; many prominent grayish brown (10YR 5/2) clay films on faces of peds; few fine prominent black (2.5Y 2/1) masses of iron and manganese throughout, common fine distinct yellowish brown (10YR 5/6) masses of iron throughout, and few prominent black (2.5Y 2/1) nodules of iron and manganese throughout; strongly acid; clear wavy boundary.

Btg2—21 to 26 inches; light brownish gray (10YR 6/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; many prominent grayish brown (10YR 5/2) clay films on faces of peds; common fine prominent yellowish brown (10YR 5/8) masses of iron throughout, few fine prominent black (2.5Y 2/1) masses of iron and manganese throughout, and few prominent black (2.5Y 2/1) nodules of iron and manganese throughout; moderately acid; clear wavy boundary.

Btg3—26 to 32 inches; light brownish gray (10YR 6/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; many prominent grayish brown (10YR 5/2) clay films and many prominent white (10YR 8/1) silt coatings on faces of peds; few fine prominent black (2.5Y 2/1) masses of iron and manganese throughout, many fine prominent yellowish brown (10YR 5/8) masses of iron throughout, and common fine faint gray (10YR 6/1) iron depletions throughout; moderately acid; clear wavy boundary.

Btg4—32 to 43 inches; light brownish gray (10YR 6/2) silty clay loam; moderate coarse prismatic structure parting to moderate medium and coarse subangular blocky; firm; few distinct grayish brown (10YR 5/2) clay films in root channels and/or pores and very few prominent white (10YR 8/1) silt coatings on vertical faces of peds; many fine and medium prominent yellowish brown (10YR 5/8) masses of iron throughout, common fine prominent black (2.5Y 2/1) masses of iron and manganese throughout, and few fine faint gray (10YR 6/1) iron depletions throughout; moderately acid; clear wavy boundary.

BCtg—43 to 50 inches; light brownish gray (10YR 6/2) silty clay loam; weak coarse prismatic structure; firm; few prominent grayish brown (10YR 5/2) clay films in root channels and/or pores; common medium prominent yellowish brown (10YR 5/8) masses of iron and common fine prominent brownish yellow (10YR 6/8) masses of iron throughout; moderately acid; clear wavy boundary.

Cg1—50 to 74 inches; light brownish gray (10YR 6/2) silt loam; massive; firm; few prominent dark grayish brown (10YR 4/2) clay films in root channels and/or pores; many medium and coarse prominent strong brown (7.5YR 5/8) and common medium distinct yellowish brown (10YR 5/4) masses of iron throughout; slightly acid; clear wavy boundary.

Cg2—74 to 85 inches; light brownish gray (10YR 6/2) silt loam; massive; firm; few distinct dark grayish brown (10YR 4/2) clay films in root channels and/or pores; many coarse prominent strong brown (7.5YR 5/8) masses of iron throughout; neutral.

Range in Characteristics

Depth to carbonates: More than 50 inches
Depth to base of diagnostic horizon: 40 to 60 inches

Ap or A horizon(s):
Hue—10YR
Value—2 to 5
Chroma—1 or 2
Texture—silt loam

Eg horizon(s):
Hue—10YR
Value—5 or 6
Chroma—1 or 2
Texture—silt loam or silt

Btg horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silty clay loam or silty clay

Cg horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silt loam or silty clay loam

16A—Rushville silt loam, 0 to 2 percent slopes

Setting

Landform: Depressions on ground moraines
Position on landform: Summits

Map Unit Composition

Rushville and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have less clay in the upper part of the subsoil
- Soils that have a darker surface layer
- Soils that have a seasonal high water table at a depth of more than 1 foot

Dissimilar soils:
- The somewhat poorly drained Darmstadt soils on summits and shoulders
- The well drained Rozetta soils on shoulders and narrow summits
- The poorly drained Burksville soils in depressions and on summits

Properties and Qualities of the Rushville Soil

Parent material: Loess
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Rushville—3w
Prime farmland status: Rushville—not prime farmland
Hydric soil status: Rushville—hydric

Sawmill Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls

Typical Pedon (OSD)

Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded, at an elevation of 535 feet; Sangamon County, Illinois; 300 feet south and 750 feet east of the northwest corner of sec. 20, T. 15 N., R. 4 W.; USGS New City topographic quadrangle; lat. 39 degrees 44 minutes 34 seconds N. and long. 89 degrees 34 minutes 15 seconds W., NAD 27:

Ap—0 to 10 inches; very dark gray (10YR 3/1) and very dark grayish brown (10YR 3/2) silty clay loam, gray (10YR 5/1) dry; weak fine subangular blocky structure; firm; few fine roots; few subrounded pebbles 1 to 3 millimeters in diameter; slightly acid; clear smooth boundary.

A1—10 to 17 inches; black (10YR 2/1) and very dark grayish brown (10YR 3/2) silty clay loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure; firm; few fine roots; few subrounded pebbles 1 to 3 millimeters in diameter; few fine rounded black (7.5YR 2.5/1) weakly

cemented concretions of iron and manganese with diffuse boundaries lining root channels and pores; few fine prominent yellowish brown (10YR 5/6) masses of iron in the matrix; neutral; clear smooth boundary.

A2—17 to 25 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine and medium angular blocky structure; firm; few fine roots; few fine rounded black (7.5YR 2.5/1) weakly cemented concretions of iron and manganese with diffuse boundaries lining root channels and pores; few fine prominent yellowish brown (10YR 5/6) masses of iron in the matrix; neutral; clear smooth boundary.

AB—25 to 32 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; weak medium prismatic structure parting to moderate fine subangular blocky; firm; few fine roots; few fine rounded black (7.5YR 2.5/1) weakly cemented concretions of iron and manganese with diffuse boundaries lining root channels and pores; few fine prominent yellowish brown (10YR 5/6) masses of iron in the matrix; neutral; clear smooth boundary.

Bg—32 to 40 inches; dark gray (10YR 4/1) silty clay loam; weak medium prismatic structure parting to moderate fine and medium angular blocky; firm; common faint very dark gray (10YR 3/1) organic coatings on faces of peds; few fine roots; few fine rounded black (7.5YR 2.5/1) weakly cemented concretions of iron and manganese with diffuse boundaries lining root channels and pores; few fine prominent strong brown (7.5YR 5/6) masses of iron in the matrix; slightly alkaline; clear smooth boundary.

Btg1—40 to 49 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium prismatic structure parting to weak medium angular blocky; firm; common distinct dark gray (10YR 4/1) clay films on faces of peds; few fine rounded black (7.5YR 2.5/1) weakly cemented concretions of iron and manganese with diffuse boundaries lining root channels and pores; few fine prominent strong brown (7.5YR 5/6) and common fine distinct yellowish brown (10YR 5/4) masses of iron in the matrix; slightly alkaline; clear smooth boundary.

Btg2—49 to 58 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure; firm; common distinct gray (10YR 5/1) clay films on faces of peds; few fine rounded black (7.5YR 2.5/1) weakly cemented concretions of iron and manganese with diffuse boundaries lining pores; few fine prominent yellowish brown (10YR 5/6) masses of iron in the matrix; slightly alkaline; clear smooth boundary.

Cg—58 to 65 inches; grayish brown (2.5Y 5/2) silty clay loam; massive; firm; very dark gray (10YR 3/1) channel linings and fillings; many medium prominent yellowish brown (10YR 5/6) masses of iron lining pores; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 36 inches
Depth to base of diagnostic horizon: 36 to 60 inches

Ap, A, or AB horizon(s):
Hue—10YR, 2.5Y, 5Y, or neutral
Value—2 or 3
Chroma—0 to 2
Texture—silty clay loam or silt loam

Bg or Btg horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—3 to 6
Chroma—1 or 2
Texture—silty clay loam

Cg horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—3 to 6
Chroma—1 or 2
Texture—silty clay loam, clay loam, silt loam, or loam

3107A—Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Sawmill and similar soils: 92 percent
Dissimilar soils: 8 percent

Minor Components

Similar soils:
• Soils that have more sand the subsoil
• Soils that have less clay in the subsoil
• Soils that have a seasonal high water table at a depth of more than 1 foot

Dissimilar soils:
• The well drained Landes soils on the higher parts of the flood plains

Properties and Qualities of the Sawmill Soil

Parent material: Silty alluvium

Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4.5 to 7.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: Frequent, November-June
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Very low

Interpretive Groups

Land capability classification: Sawmill—4w
Prime farmland status: Sawmill—prime farmland where drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil status: Sawmill—hydric

Terril Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Cumulic Hapludolls

Typical Pedon

Terril loam, 2 to 5 percent slopes, at an elevation of 450 feet; Putnam County, Illinois; approximately 1,460 feet east and 2,300 feet north of the southwest corner of sec. 25, T. 33 N., R. 1 W.; USGS Spring Valley topographic quadrangle; lat. 41 degrees 18 minutes 05 seconds N. and long. 89 degrees 10 minutes 38 seconds W., NAD 27:

Ap—0 to 9 inches; dark brown (10YR 3/3) loam, brown (10YR 5/3) dry; weak fine and medium granular structure; friable; common fine roots; neutral; abrupt smooth boundary.
A—9 to 30 inches; dark brown (10YR 3/3) loam, brown (10YR 5/3) dry; weak medium subangular blocky structure; friable; common fine roots; neutral; clear smooth boundary.
Bw1—30 to 46 inches; dark yellowish brown (10YR 4/4) loam; moderate medium subangular blocky structure; friable; few fine roots; many distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; neutral; clear smooth boundary.
Bw2—46 to 68 inches; dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; friable; few fine roots; neutral; clear smooth boundary.
BC—68 to 80 inches; dark yellowish brown (10YR 4/4) sandy loam; weak medium subangular blocky structure; very friable; 5 percent mixed gravel; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 36 inches
Depth to carbonates: More than 40 inches

Ap or A horizon(s):
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—loam or clay loam

Bw and BC horizons:
Hue—10YR or 2.5Y
Chroma—3 or 4
Value—3 or 4
Texture—loam, clay loam, or sandy loam

C horizon(s):
Hue—10YR or 2.5Y
Chroma—4 or 5
Value—3 or 4
Texture—loam, clay loam, or sandy loam
Content of rock fragments—1 to 5 percent

587B—Terril loam, 2 to 5 percent slopes

Setting

Landform: Alluvial fans on ground moraines
Position on landform: Footslopes and toeslopes

Map Unit Composition

Terril and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
• Soils that have a seasonal high water table within a depth of 6 feet
• Soils that have less sand throughout
• Soils that have a thinner dark surface soil

Dissimilar soils:
• The somewhat poorly drained Coffeen and Lawson soils on flood plains

• The well drained Hickory soils on backslopes above the Terril soil

Properties and Qualities of the Terril Soil

Parent material: Slope alluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 5.0 percent
Shrink-swell potential: Low
Seasonal high water table: At a depth of more than 6 feet
Flooding: None
Potential for frost action: Moderate
Corrosivity: Moderate for steel and low for concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Terril—2e
Prime farmland status: Terril—prime farmland in all areas
Hydric soil status: Terril—not hydric

Velma Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Typic Argiudolls

Typical Pedon (OSD)

Velma silt loam, 10 to 18 percent slopes; at an elevation of 513 feet; Macoupin County, Illinois; 1,000 feet south and 1,200 feet west of the center of sec. 6, T. 9 N., R. 8 W.; USGS Greenfield topographic quadrangle; lat. 39 degrees 15 minutes 27 seconds W. and long. 90 degrees 8 minutes 56 seconds N., NAD 27:

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate very fine and fine granular structure; very friable; many very fine and fine roots; neutral; abrupt smooth boundary.

A—7 to 16 inches; very dark grayish brown (10YR 3/2) loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium granular structure; friable; common very fine and fine roots; few yellowish brown (10YR 5/4) soil fragments or wormcasts; 3 percent gravel; moderately acid; clear smooth boundary.

Bt1—16 to 26 inches; yellowish brown (10YR 5/4) clay loam; moderate fine and medium subangular blocky structure; friable; common fine roots; many distinct brown (10YR 4/3) clay films on faces of peds; 3 percent gravel; strongly acid; clear smooth boundary.

Bt2—26 to 34 inches; yellowish brown (10YR 5/4) clay loam; moderate fine and medium subangular blocky structure; friable; few fine roots; many distinct brown (10YR 5/3) clay films on faces of peds; 3 percent gravel; strongly acid; clear smooth boundary.

Bt3—34 to 47 inches; yellowish brown (10YR 5/4) clay loam; moderate fine and medium subangular blocky structure; friable; few distinct brown (10YR 4/3) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/8) masses of iron along pores; 3 percent gravel; moderately acid; clear smooth boundary.

Bt4—47 to 54 inches; yellowish brown (10YR 5/4) clay loam; weak medium subangular blocky structure; friable; few distinct dark brown (10YR 4/3) clay films on faces of peds; common distinct very dark grayish brown (10YR 3/2) organic coatings along pores; common medium faint yellowish brown (10YR 5/6) masses of iron along pores; 3 percent gravel; slightly acid; clear smooth boundary.

C—54 to 80 inches; pale brown (10YR 6/3) loam; massive; friable; few distinct brown (10YR 4/3) clay films lining pores; common medium distinct yellowish brown (10YR 5/6) masses of iron in the matrix; 3 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to carbonates (where present): More than 40 inches.
Depth to base of diagnostic horizon: 40 to 60 inches
Thickness of the loess: Less than 20 inches
Thickness of the mollic epipedon: 10 to 20 inches

Ap or A horizon(s):
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam, loam, or clay loam
Content of rock fragments—0 to 15 percent

Bt or 2Bt horizon(s):
Hue—7.5YR or 10YR
Value—4 or 5

Chroma—3 to 8
Texture—clay loam or loam
Content of rock fragments—0 to 15 percent

C or 2C horizon(s):
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—3 to 8
Texture—clay loam, loam, or sandy loam
Content of rock fragments—2 to 15 percent

250D—Velma silt loam, 10 to 18 percent slopes

Setting

Landform: Ground moraines
Position on landform: Backslopes

Map Unit Composition

Velma and similar soils: 97 percent
Dissimilar soils: 3 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table within a depth of 6 feet
- Soils that have a lighter colored surface soil
- Soils that have a thinner surface soil

Dissimilar soils:
- The moderately well drained Harrison soils on summits
- The well drained Terril soils on footslopes

Properties and Qualities of the Velma Soil

Parent material: Till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 4.0 percent
Shrink-swell potential: Moderate
Seasonal high water table: At a depth of more than 6 feet
Flooding: None
Potential for frost action: Moderate
Corrosivity: High for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Velma—3e
Prime farmland status: Velma—not prime farmland
Hydric soil status: Velma—not hydric

Virden Series

Taxonomic classification: Fine, smectitic, mesic Vertic Argiaquolls

Typical Pedon (OSD)

Virden silty clay loam, 0 to 2 percent slopes, at an elevation of 699 feet; Adams County, Illinois; 140 feet west and 54 feet north of the southeast corner of sec. 3, T. 2 N., R. 6 W.; USGS Bowen topographic quadrangle; lat. 40 degrees 10 minutes 52 seconds N. and long. 91 degrees 4 minutes 5 seconds W., NAD 27:

Ap—0 to 8 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate medium granular structure; firm; slightly alkaline; abrupt smooth boundary.

A—8 to 16 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine granular structure; firm; moderately acid; clear smooth boundary.

Btg1—16 to 23 inches; very dark gray (10YR 3/1) silty clay, grayish brown (10YR 5/2) dry; strong fine angular blocky structure; firm; few faint black (10YR 2/1) organo-clay films on faces of peds; few fine faint black (10YR 2/1) concretions of iron and manganese throughout; slightly acid; clear smooth boundary.

Btg2—23 to 34 inches; gray (5Y 5/1) silty clay loam; weak coarse prismatic structure parting to moderate medium angular blocky; firm; few distinct dark gray (10YR 4/1) clay films on faces of peds; many medium prominent brownish yellow (10YR 6/6) masses of iron and few fine prominent black (10YR 2/1) masses of iron and manganese throughout; slightly acid; clear smooth boundary.

Btg3—34 to 42 inches; gray (5Y 5/1) silty clay loam; weak and moderate coarse prismatic structure parting to moderate coarse angular blocky; firm; few distinct dark gray (5Y 4/1) clay films on faces of peds; common medium prominent light olive brown (2.5Y 5/6) masses of iron and few fine prominent black (10YR 2/1) masses of iron and manganese throughout; neutral; clear smooth boundary.

Btg4—42 to 49 inches; gray (5Y 5/1) silty clay loam; moderate coarse prismatic structure parting to weak coarse angular blocky; firm; very few distinct

dark gray (N 4/0) clay films on faces of peds; many medium prominent olive brown (2.5Y 4/4) masses of iron throughout; neutral; gradual smooth boundary.

Cg—49 to 60 inches; gray (5Y 5/1) silty clay loam; massive; firm; common medium prominent olive brown (2.5Y 4/4) masses of iron throughout; neutral.

Range in Characteristics

Depth to carbonates (where present): More than 50 inches
Depth to base of diagnostic horizon: 40 to 60 inches
Thickness of the mollic epipedon: 10 to 24 inches

Ap or A horizon(s):
Hue—10YR, 2.5Y, or 5Y
Value—2 or 3
Chroma—1 or 2
Texture—silty clay loam or silt loam

Btg horizon(s):
Hue—10YR, 2.5Y, 5Y, or neutral
Value—2 to 6
Chroma—0 to 4
Texture—silty clay loam, silty clay, or silt loam

Cg horizon(s):
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 4
Texture—silty clay loam or silt loam

50A—Virden silty clay loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines (fig. 5)
Position on landform: Toeslopes

Map Unit Composition

Virden and similar soils: 92 percent
Dissimilar soils: 8 percent

Minor Components

Similar soils:
- Soils that have less clay in the surface layer
- Soils that have a seasonal high water table at a depth of more than 1 foot
- Soils that have a thinner dark surface soil

Dissimilar soils:
- The poorly drained Piasa soils in depressions and on toeslopes

Properties and Qualities of the Virden Soil

Parent material: Loess
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 6.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Very low

Interpretive Groups

Land capability classification: Virden—2w
Prime farmland status: Virden—prime farmland where drained
Hydric soil status: Virden—hydric

885A—Virden-Fosterburg silt loams, 0 to 2 percent slopes

Setting

Landform: Ground moraines (fig. 3)
Position on landform: Toeslopes

Map Unit Composition

Virden and similar soils: 55 percent
Fosterburg and similar soils: 45 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils that have a lighter colored surface soil
- Soils that have a thinner, darker surface soil and have a lighter colored subsurface layer
- Soils that have more sand in the lower part of the subsoil

Properties and Qualities of the Virden Soil

Parent material: Loess

Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 6.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: None
Content of clay: The surface layer contains less clay than the surface layer in the typical pedon of the series description.
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Properties and Qualities of the Fosterburg Soil

Parent material: Loess
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Content of sodium: Moderate within a depth of 30 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4.0 to 6.0 percent
Shrink-swell potential: High
Apparent seasonal high water table: At the surface to 1 foot below the surface
Ponding: At the surface to 0.5 foot above the surface
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Virden—2w; Fosterburg—3w
Prime farmland status: Virden and Fosterburg—prime farmland where drained
Hydric soil status: Virden and Fosterburg—hydric

Wakeland Series

Taxonomic classification: Coarse-silty, mixed, superactive, nonacid, mesic Aeric Fluvaquents

Typical Pedon

Wakeland silt loam, 0 to 2 percent slopes, frequently flooded, at an elevation of 645 feet; Adams County, Illinois; 1,240 feet east and 840 feet north of the southwest corner of sec. 5, T. 1 S., R. 6 W.; USGS Camp Point, Illinois, topographic quadrangle; lat. 40 degrees 0 minutes 28 seconds N. and long. 91 degrees 7 minutes 11 seconds W., NAD 27:

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, very pale brown (10YR 7/3) dry; weak fine granular structure; friable; common fine roots; moderately acid; abrupt smooth boundary.
A—6 to 10 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; weak fine granular structure; friable; few fine roots; common fine distinct yellowish brown (10YR 5/6) masses of iron throughout, common fine distinct black (10YR 2/1) masses of iron and manganese throughout, and common fine faint grayish brown (10YR 5/2) iron depletions throughout; moderately acid; abrupt smooth boundary.
Cg1—10 to 21 inches; 88 percent dark grayish brown (10YR 4/2) and 2 percent light yellowish brown (10YR 6/4), stratified silt loam; weak fine granular structure; friable; few very fine roots; common fine distinct yellowish brown (10YR 5/6) masses of iron and common fine faint gray (10YR 5/1) iron depletions throughout; slightly acid; gradual smooth boundary.
Cg2—21 to 35 inches; 88 percent dark grayish brown (10YR 4/2) and 2 percent grayish brown (10YR 5/2), stratified silt loam; weak very fine granular structure; friable; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron and common fine faint gray (10YR 5/1) iron depletions throughout; slightly acid; gradual smooth boundary.
Cg3—35 to 50 inches; dark gray (10YR 4/1) silt loam; massive; friable; common fine and medium prominent yellowish brown (10YR 5/6) and few fine distinct yellowish brown (10YR 5/4) masses of iron throughout and common fine faint gray (10YR 5/1) iron depletions throughout; moderately acid; gradual smooth boundary.
Cg4—50 to 65 inches; dark gray (10YR 4/1) silt loam; massive; friable; common fine and medium

prominent yellowish brown (10YR 5/6) masses of iron and common fine faint gray (10YR 5/1) iron depletions throughout; moderately acid; gradual smooth boundary.

Cg5—65 to 80 inches; dark gray (10YR 4/1) silt loam; massive; friable; common fine and medium distinct yellowish brown (10YR 5/4) and few fine prominent yellowish brown (10YR 5/8) masses of iron throughout and common fine faint gray (10YR 5/1) iron depletions throughout; slightly acid.

Range in Characteristics

Ap or A horizon(s):
Hue—10YR
Value—3 to 5
Chroma—1 to 4
Texture—silt loam

Cg or C horizon(s):
Hue—10YR, 7.5YR, or 2.5Y
Value—4 to 7
Chroma—1 to 6
Texture—silt loam or loam

3333A—Wakeland silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains (fig. 4)

Map Unit Composition

Wakeland and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that have more sand in the underlying material
- Soils that have dark buried layers within a depth of 40 inches

Dissimilar soils:
- The well drained Landes soils on the slightly higher parts of the flood plains
- The poorly drained Sawmill soils in depressions and swales

Properties and Qualities of the Wakeland Soil

Parent material: Alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 13.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Apparent seasonal high water table: 0.5 foot to 2.0 feet below the surface
Flooding: Frequent, November-June
Potential for frost action: High
Corrosivity: Moderate for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Wakeland—3w
Prime farmland status: Wakeland—prime farmland where drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil status: Wakeland—not hydric

Winfield Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon

Winfield silt loam, 2 to 5 percent slopes, at an elevation of about 540 feet; St. Clair County, Illinois; approximately 205 feet east and 610 feet south of the northwest corner of sec. 9, T. 2 N., R. 7 W.; USGS Collinsville, Illinois, topographic quadrangle; lat. 38 degrees 38 minutes 32 seconds N. and long. 89 degrees 53 minutes 27 seconds W., NAD 27:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many very fine roots; about 22 percent clay; neutral; abrupt smooth boundary.

E—9 to 13 inches; brown (10YR 5/3) silt loam, pale brown (10YR 6/3) dry; weak medium platy structure parting to moderate very fine subangular blocky; friable; common very fine roots; few faint light gray (10YR 7/2 dry) clay depletions on faces of peds; few fine rounded black (10YR 2/1) nodules of iron and manganese; moderately acid; clear smooth boundary.

Bt1—13 to 21 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots; few distinct light gray (10YR 7/2 dry) clay depletions along root channels; many distinct brown (10YR 4/3) clay films on faces of peds; common fine and

medium rounded black (10YR 2/1) nodules of iron and manganese with sharp strong brown (7.5YR 4/6) boundaries; moderately acid; clear smooth boundary.

Bt2—21 to 30 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; common very fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and few fine distinct strong brown (7.5YR 5/6) masses of iron in the matrix; few fine rounded black (10YR 2/1) nodules of iron and manganese with sharp strong brown (7.5YR 4/6) boundaries; strongly acid; gradual smooth boundary.

Btg1—30 to 40 inches; light brownish gray (10YR 6/2) silty clay loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine and medium distinct yellowish brown (10YR 5/4) and few fine prominent strong brown (7.5YR 5/6) masses of iron in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron and manganese with clear strong brown (7.5YR 4/6) boundaries; moderately acid; clear smooth boundary.

Btg2—40 to 56 inches; light brownish gray (10YR 6/2) silty clay loam; weak medium prismatic structure parting to weak medium and coarse subangular blocky; firm; few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; many medium and coarse prominent strong brown (7.5YR 5/6) masses of iron in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron and manganese with clear strong brown (7.5YR 4/6) boundaries; moderately acid; clear smooth boundary.

Btg3—56 to 62 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium angular blocky structure; friable; few very fine roots; few faint brown (10YR 5/3) clay films on faces of peds; common fine and medium prominent strong brown (7.5YR 5/8) masses of iron in the matrix; common medium irregular black (10YR 2/1) masses of iron and manganese with diffuse strong brown (7.5YR 5/6) boundaries; slightly acid; gradual smooth boundary.

Cg—62 to 80 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; common medium and coarse prominent strong brown (7.5YR 4/6) and few fine prominent yellowish brown (10YR 5/6) masses of iron in the matrix; common medium and coarse irregular black (10YR 2/1) masses of iron and manganese with diffuse strong brown (7.5YR 5/6) boundaries; neutral.

Range in Characteristics

Depth to base of diagnostic horizon: 35 to 65 inches

Ap or A horizon(s):
Hue—10YR
Value—3 to 5 (5 to 7 dry)
Chroma—2 or 3
Texture—silt loam or silty clay loam

E horizon(s), where present:
Hue—10YR
Value—4 to 6 (6 to 8 dry)
Chroma—2 to 4
Texture—silt loam or silty clay loam

BE horizon(s), where present:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam or silty clay loam

Bt or Btg horizon(s):
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—silty clay loam or silt loam

C or Cg horizon(s):
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam

477B—Winfield silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on landform: Summits and shoulders

Map Unit Composition

Winfield and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that have a thinner surface soil
- Soils that have more sand in the lower part of the subsoil and in the underlying material

• Soils that have a seasonal high water table at a depth of more than 3.5 feet

Dissimilar soils:
• The well drained Hickory soils on backslopes

Properties and Qualities of the Winfield Soil

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 2.0 to 3.5 feet below the surface
Flooding: None
Potential for frost action: High
Corrosivity: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Winfield—2e
Prime farmland status: Winfield—prime farmland in all areas
Hydric soil status: Winfield—not hydric

477C2—Winfield silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines
Position on landform: Shoulders and backslopes

Map Unit Composition

Winfield and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
• Soils that have a seasonal high water table at a depth of more than 3.5 feet
• Soils that have more sand in the lower part of the subsoil and in the underlying material
• Soils that have more clay in the surface layer

Dissimilar soils:
• The well drained Hickory soils on the lower backslopes

Properties and Qualities of the Winfield Soil

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 2.0 to 3.5 feet below the surface
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Corrosivity: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: Winfield—3e
Prime farmland status: Winfield—not prime farmland
Hydric soil status: Winfield—not hydric

477C3—Winfield silty clay loam, 5 to 10 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on landform: Shoulders and backslopes

Map Unit Composition

Winfield and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
• Soils that have less clay in the surface layer
• Soils that have a seasonal high water table at a depth of more than 3.5 feet
• Soils that have more sand in the lower part of the subsoil and in the underlying material

Dissimilar soils:
- The well drained Hickory soils on the lower backslopes

Properties and Qualities of the Winfield Soil

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 2.0 to 3.5 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Very low

Interpretive Groups

Land capability classification: Winfield—4e
Prime farmland status: Winfield—not prime farmland
Hydric soil status: Winfield—not hydric

477D3—Winfield silty clay loam, 10 to 18 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on landform: Shoulders and backslopes

Map Unit Composition

Winfield and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have less clay in the surface layer
- Soils that have a seasonal high water table at a depth of more than 3.5 feet
- Soils that have more sand in the lower part of the subsoil and in the underlying material

Dissimilar soils:
- The well drained Hickory soils on the lower backslopes

Properties and Qualities of the Winfield Soil

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table: 2.0 to 3.5 feet below the surface
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Corrosivity: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Very low

Interpretive Groups

Land capability classification: Winfield—4e
Prime farmland status: Winfield—not prime farmland
Hydric soil status: Winfield—not hydric

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of roadfill and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Soil Series and Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

A total of 336,164 acres in Macoupin County is cropland (USDA, 1997). The major row crops are corn and soybeans. The major small grain crop is wheat.

The soils in Macoupin County have good potential for continued crop production, especially if the latest crop-production technology is applied. This soil survey can be used as a guide in applying this technology.

Management Considerations on Cropland

The management concerns affecting the use of the soils in Macoupin County for crops and pasture are shown in the table 6. The main concerns in managing cropland are crusting, flooding, ponding, poor tilth, water erosion, and wetness. Excess sodium, excessive permeability, high pH, and low pH are additional management concerns.

Crusting occurs when flowing water or raindrops break down soil structural units, moving clay downward and leaving a concentration of sand grains and silt particles on the surface. Crusts can reduce the rate of water infiltration, increase the runoff rate, and restrict seedling emergence and oxygen diffusion to seedlings.

Crusting can be minimized by increasing soil aggregate stability through the addition of organic matter to the surface and by maintaining a cover of plants or crop residue, which reduces the impact of raindrops.

Flooding occurs in unprotected areas along the major rivers and their tributaries. Levees or diversions reduce the extent of the crop damage caused by floodwater. Surface drainage ditches help to remove floodwater where suitable outlets are available. Management of drainage systems in conformance with regulations influencing wetlands may require special permits and extra planning. Selecting crop varieties that are adapted to shorter growing seasons and wetter conditions reduces the extent of flood damage.

Ponding occurs on soils when the seasonal high water table is above the surface. Land grading helps to control ponding. Surface ditches and surface inlet tile also can help to remove the excess water if suitable outlets are available. Management of drainage in conformance with regulations influencing wetlands may require special permits and extra planning.

Poor tilth can occur in soils when part of the subsoil is incorporated into the plow layer because of erosion. Incorporation of subsoil material decreases the amount of organic matter and increases the content of clay in the surface soil. Intensive rainfall often causes surface crusting. Poor tilth also occurs in poorly drained soils with a high content of clay, regardless of the content of organic matter, and in soils that have been excessively tilled.

Poor tilth decreases the rate of water infiltration and increases the runoff rate and the susceptibility to erosion on the more sloping soils. Soils with poor tilth generally have a surface layer that is sticky when wet and hard and cloddy when dry. They can be tilled only within a narrow range of moisture content. As a result, seedbed preparation is difficult.

Returning crop residue to the soil, regularly adding other organic material, minimizing tillage, and applying conservation tillage systems during periods of near optimal soil moisture conditions improve tilth.

Water erosion can occur when the surface soil is not protected against the impact of raindrops, which can reduce the stability of soil aggregates. This reduced stability decreases the rate of water infiltration and increases the surface runoff rate. Soils with long or steep slopes are more susceptible to water erosion than other soils.

Erosion, primarily sheet and rill erosion, removes the surface soil, which commonly has more biological activity and organic matter than any other part of the soil. Soil productivity decreases as the content of organic matter and level of natural fertility are lowered. Poor tilth and crusting occur as the subsoil, which is generally higher in content of clay than the surface soil, is incorporated through tillage into the plow layer.

Excessive runoff decreases the quality of surface water through sedimentation and contamination by pesticides.

Erosion can be controlled by a conservation tillage system that leaves crop residue on the surface after planting or by a cropping system that includes grasses and legumes in the cropping sequence. Contour farming and/or terraces in combination with a conservation tillage system can help to control erosion on soils with long, uniform slopes.

Wetness occurs in soils when the seasonal high water table is at or near the surface. Subsurface tile drains can lower the seasonal high water table if suitable outlets are available. In soils with a high content of clay and restricted permeability, a subsurface drainage system may not be practical. In these soils surface ditches can reduce the wetness. Management of drainage in conformance with regulations influencing wetlands may require special permits and extra planning.

Excess sodium occurs in soils that have a high content of sodium in the subsoil. The sodium flocculates soil structure. The high sodium concentration and poor physical makeup of these soils restrict the penetration of plant roots, limit the availability of water, and thus cause moisture stress

late in the growing season. These soils also have excess moisture during wet periods. The condition of these soils limits the availability and uptake of some plant nutrients. The soils tend to have low porosity and low infiltration rates. Applying a conservation tillage system that leaves crop residue on the surface after planting and regularly adding other organic material improve fertility and increase the rate of water infiltration.

Excessive permeability can occur in soils that have a high content of sand and many of the larger diameter pores. The capacity of the soils to retain moisture for plant use is limited. Deep leaching of nutrients and pesticides is possible. It increases the risk of ground-water pollution.

Irrigation can supply the moisture needed for crops. Frequent applications of a small amount of fertilizer are needed. One application of a large amount can result in excessive loss of plant nutrients through leaching.

High pH, or a pH of more than 7.9, affects the availability of many plant nutrients and influences the effectiveness of herbicides. Frequent applications of a small amount of fertilizer are needed to correct nutrient imbalances. Crops may respond well to additions of phosphate fertilizer on the soils with a high pH. Applications of herbicide should be adjusted as the level of alkalinity increases. Incorporating green manure crops, manure, or crop residue into the soil, applying a system of conservation tillage, and using conservation cropping systems help to overcome this limitation.

Low pH, or a pH of less than 4.5, can decrease the solubility and availability of plant nutrients. Applying lime according to the results of soil tests helps to overcome this limitation.

Explanation of Criteria

Crusting.—In the surface layer, the average content of organic matter is 2.5 percent or less and the content of clay is between 20 and 35 percent.

Excessive permeability.—The lower limit of the permeability rate is 6.0 or more inches per hour within the soil profile.

Excess sodium.—The sodium adsorption ratio is more than 12 within a depth of 30 inches.

Flooding.—The soil is occasionally flooded or frequently flooded.

High pH.—The pH is more than 7.9 within a depth of 40 inches.

Low pH.—The pH is less than 4.5 within a depth of 40 inches.

Ponding.—The seasonal high water table is above the surface.

Poor tilth.—The content of clay in the surface layer is 27 percent or more.

Water erosion.—The Kw factor multiplied by the slope is more than 0.8, and the slope is 3 percent or more.

Wetness.—The water table is within a depth of 1.5 feet at some time during the growing season in normal years.

Management Considerations on Pasture

The management concerns affecting the use of the soils in the county for pasture are shown in the table 6. The main management concerns are low pH, water erosion, and wetness. Additional management concerns are an equipment limitation, excess sodium, flooding, frost heave, high pH, low fertility, ponding, and poor tilth.

Low pH, or a pH of 5.5 or less, can decrease the solubility and availability of plant nutrients. Selecting adapted forage and hay varieties and applying lime according to the results of soil tests help to overcome this limitation.

Water erosion can occur in overgrazed areas or during periods of pasture establishment and renovation when the surface soil is not protected against the impact of raindrops, which can cause poor tilth. Deterioration of tilth decreases the rate of water infiltration and increases the surface runoff rate. Soils with long or steep slopes are more susceptible to water erosion than other soils.

Erosion can be controlled by deferred grazing, which helps to prevent overgrazing and thus also helps to prevent surface compaction and excessive runoff and erosion. Tilling on the contour, using a no-till system of seeding when a seedbed is prepared or the pasture is renovated, and selecting adapted forage and hay varieties also help to control erosion.

Wetness occurs in soils when the seasonal high water table is at or near the surface. Subsurface tile drains can help to lower the seasonal high water table if suitable outlets are available. Management of drainage in conformance with regulations may require special permits and extra planning. Selecting forage and hay varieties adapted to wet conditions improves forage production. Restricted use during wet periods helps to keep the pasture in good condition.

An *equipment limitation* occurs on soils with slopes of more than 18 percent. This limitation can cause rapid wear of equipment. It can also hinder fertilization, harvest, pasture renovation, and seedbed preparation. It cannot be easily overcome.

Excess sodium occurs in soils that have a high content of sodium in the subsoil. The sodium

flocculates soil structure. The high sodium concentration and poor physical makeup of these soils restrict the penetration of plant roots, limit the availability of water, and thus cause moisture stress late in the growing season. These soils also have excess moisture during wet periods. The condition of these soils limits the availability and uptake of some plant nutrients. The soils tend to have low porosity and low infiltration rates. Selecting forage and hay varieties adapted to the high sodium content can improve forage production.

Flooding occurs in unprotected areas along the major rivers and their tributaries. Surface drainage ditches help to remove floodwater where suitable outlets are available. Management of drainage in conformance with regulations may require special permits and extra planning. Selecting forage and hay varieties adapted to shorter growing seasons and wetter conditions reduces the extent of flood damage. Restricted use during wet periods helps to keep the pasture in good condition.

Frost heave occurs when ice lenses or bands that drive an ice wedge between two layers develop near the surface layer of a soil. The ice wedges heave the overlying soil layer upward, snapping the roots. Soils with a low content of sand have small pores that hold water and enable ice lenses to form. Selecting adapted forage and hay varieties helps to reduce the effects of frost heave. Timely deferment of grazing helps to maintain a protective cover that insulates the soil, thereby reducing the effects of frost heave.

High pH, or a pH of more than 7.9, affects the availability of many plant nutrients. Frequent applications of a small amount of fertilizer are needed to correct nutrient imbalances. Selecting adapted forage and hay varieties helps to overcome this limitation.

Low fertility occurs in soils with a low content of organic matter and a low cation-exchange capacity. The capacity of the soil to retain nutrients for plant use is limited. Frequent applications of small amounts of fertilizer help to prevent excessive loss of plant nutrients through leaching. When used as part of a seeding mixture, legumes can provide nitrogen to the grass varieties. Timely deferment of grazing helps to maintain the surface cover and the content of organic matter, a source of nutrients in the soil.

Ponding occurs on soils when the seasonal high water table is above the surface. Land grading helps to control ponding. Surface ditches and surface inlet tile also can help to remove the excess water if suitable outlets are available. Management of drainage in conformance with regulations may require special permits and extra planning. Selecting forage and hay varieties adapted to wet conditions improves forage production. Restricted use during wet periods helps to keep the pasture in good condition.

Poor tilth can occur in soils when part of the subsoil is incorporated into the plow layer because of erosion. Incorporation of subsoil material decreases the amount of organic matter and increases the content of clay in the surface soil. Intensive rainfall often causes surface crusting. Poor tilth also occurs in poorly drained soils with a high content of clay, regardless of the content of organic matter, and in soils that have been excessively tilled.

Poor tilth decreases the rate of water infiltration and increases the runoff rate and the susceptibility to erosion on the more sloping soils. Soils with poor tilth generally have a surface layer that is sticky when wet and hard and cloddy when dry. They can be tilled only within a narrow range of moisture content. As a result, seedbed preparation is difficult.

When pastures are established or renovated, minimizing tillage and applying conservation tillage operations during periods when soil moisture conditions are optimal or nearly optimal can improve tilth.

Explanation of Criteria

Equipment limitation.—The slope is more than 18 percent.

Excess sodium.—The sodium adsorption ratio is more than 12 within a depth of 30 inches.

Flooding.—The soil is occasionally flooded or frequently flooded.

Frost heave.—The potential for frost action is moderate or high, and the soil is poorly drained or very poorly drained.

High pH.—The pH is more than 7.9 within a depth of 40 inches.

Low fertility.—The average content of organic matter in the surface layer is less than 1 percent, or the cation-exchange capacity, expressed in terms of milliequivalents per 100 grams of soil, is 7 or less.

Low pH.—The pH is 5.5 or less within a depth of 40 inches.

Ponding.—The seasonal high water table is above the surface.

Poor tilth.—The content of clay in the surface layer is 27 percent or more.

Water erosion.—The Kw factor multiplied by the slope is more than 1.0, and the slope is 3 percent or more.

Wetness.— The seasonal high water table is within a depth of 1.5 feet.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 7. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered (Fehrenbacher et al., 1978).

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 7 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Pasture and Hay Yields

Under good management, proper grazing is essential for the production of high-quality forage, stand survival, and erosion control. Proper grazing helps the plants to maintain sufficient and generally vigorous top growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation also are important management practices.

Yield estimates are often given in animal unit months (AUMs), or the amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about forage yields other than those shown in table 7.

Mined Soils

Descriptions and maps of mined soils reflect conditions in the survey area at the time when fieldwork was completed and may reflect active mining and/or reclamation. More recent reclamation practices or changes in soil classification may change the mapping, classification, and interpretation of mined soils. At the time of publication, the long-term crop yield information that is typically used for yield estimates was not available for mined soils. The users of this survey should contact the Illinois Department of Natural Resources, Office of Mines and Minerals, Land Reclamation Division, for current, site-specific information.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops, including corn, small grain, and hay. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA, 1961). Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of map units in this survey area is given in the section “Soil Series and Detailed Soil Map Units” and in table 7.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation’s short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation’s prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

About 361,268 acres, or more than 65 percent of the county, meets the requirements for prime farmland.

The map units in the county that are considered prime farmland are listed in table 8. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding and wetness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 5. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading “Soil Series and Detailed Soil Map Units.”

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland

hydrology (Cowardin et al., 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (Soil Survey Staff, 1999) and in the “Soil Survey Manual” (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in “Field Indicators of Hydric Soils in the United States” (Hurt et al., 1998).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are made up mainly of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up mainly of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform. Table 9 indicates the hydric and nonhydric soils identified in the names of the detailed map units in the county. The table also identifies the included soils that are considered hydric. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Windbreaks are often planted on land that did not originally support trees. Knowledge of how trees perform on such land can be gained only by observing and recording the performance of trees that have been planted and have survived. Many popular windbreak species are not indigenous to the areas in which they are planted.

Each tree or shrub species has certain climatic and physiographic limits. Within these parameters, a tree or shrub may grow well or grow poorly, depending on the characteristics of the soil. Each tree or shrub has definable potential heights in a given physiographic area and under a given climate. Accurate definitions of the potential heights are necessary when a windbreak is planned and designed.

Table 10 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in table 10 are based on measurements and observation of established plantings that have been given adequate care. They

can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

Forestland

John Churan, district forester, Illinois Department of Natural Resources, helped prepare this section.

Approximately 55 percent (84,800 acres) of Macoupin County is forested. Of this total, only about 5,000 acres is under management by a forester (Iverson et al., 1989).

The forestland is mainly in sloping areas, on the narrower bottomland, and in strips along creeks and rivers. Originally, these areas were heavily if not entirely forested, but the flatter areas were converted to agriculture long ago. Adjoining the slopes were forest areas that transitioned into prairie, gradually in some places (savannah sites) and abruptly in others. These areas have also, for the most part, been converted to agriculture, although forested areas remain in a few places. Overall, Macoupin County is a mixture of forest and prairie. The northeast corner of the county borders the “Grand Prairie” (Swegman, 1979). Of the 129,400 originally forested acres, about 20 percent remains today.

Soil properties that affect the growth of trees include reaction (pH), fertility, drainage, texture, structure, and soil depth. The soil also serves as a reservoir for moisture, provides an anchor for tree roots, and supplies essential plant nutrients. Soils that do not have extremes of these properties and that have an effective rooting depth of more than 40 inches allow the best growth for wood production.

Site characteristics that affect tree growth include aspect (the direction in which the slopes face) and degree of slope. These site characteristics influence the amount of available sunlight, drainage, soil temperature, soil moisture, and relative humidity.

Typically, north and east aspects and the lower slope positions, which are cooler and have better moisture conditions than other sites, are the best upland sites for tree growth. The most productive sites on bottomland are generally the deep, well drained soils.

Management activities can influence forestland productivity and should be aimed at eliminating factors that cause tree stress. Generally, these activities involve thinning overstocked young stands; harvesting old, mature trees; and eliminating wildfire and grazing. Wildfire and grazing have very negative impacts on forest growth and quality. Some of the forestland in the county is still subject to grazing, which destroys the leaf layer on the surface, compacts the soils, and eliminates or damages tree seedlings. Forestland sites that are not grazed have the highest potential for optimum timber production.

By far, the bulk of forest in the county is in areas of Hickory soils. Some forested areas extend onto the adjoining Atlas, Elco, Fishhook, Homen, Keomah, and Rozetta soils. Upland tree species are sensitive to differences in soils. Some species are adapted to certain sites but are only marginally adapted or are not adapted at all to other sites. A broad listing of species would include red chinquapin oak, white chinquapin oak, black chinquapin oak, bur oak, hickory, walnut, elm, and hackberry. A serious disease affects white ash. Hard maple is making strong incursions onto many of the shadier, moist slopes typically occupied by red oak. American elm is ubiquitous in the understory but occurs rarely as a larger tree.

The forest sites on the flood plains in the county occur as remnants of original stands and as regeneration areas. Where fields have been abandoned, the sites can be seeded readily. Lawson soils are the most common forest-associated soils on these sites, but Wakeland, Coffeen, and certain other soils also occur on these sites. Soft maple is ubiquitous, but common associates include cottonwood, green ash, and sycamore. Some sites in which the soils have better internal drainage support walnut, hackberry, bitternut hickory, and assorted other bottomland species. Box elder, which is fairly widespread, is generally considered a “weed species.”

The many values of forestland include economic benefits (timber production), wildlife habitat, erosion control or prevention, ground-water infiltration or retention, water quality (including filtering and cleansing of agricultural pollutants), esthetic values, and recreational opportunities. All of these features can be enhanced through proper management.

Where regeneration of forest stands is desired, the best approach is to concentrate on the mixture (or “composition”) of the species that originally occupied the site. Reforestation can be attempted by various means, including planting seedlings or tree seeds, encouraging natural regeneration, or a combination of these. Assistance can be obtained from a professional forester.

Similarly, a forester’s assistance should be sought before a stand is manipulated for the purpose of improving or optimizing composition, growth rates, and tree quality.

The tables in this section (table 11 and tables 12a through 12d) can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forest management.

Forest Productivity

In table 11, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Suggested trees to plant are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forest Management

In tables 12a through 12d, interpretive ratings are given for various aspects of forest management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified forest management practice (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms for seedling mortality are expressed as *low, moderate,* and *high.* Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities, *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. The hazard is described

as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance; and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *suitability for mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Ratings in the column *suitability for mechanical site preparation (deep)* are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Recreation

Only a small acreage in Macoupin County is developed for recreational uses. Scattered recreational areas are throughout the county. The most popular of these is Beaver Dam State Park. Other recreational areas in the county are playgrounds, swimming pools, athletic fields, golf courses, fishing ponds, and camping and fishing areas.

The soils of the survey area are rated in tables 13a and 13b according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation

procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in tables 13a and 13b can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are

reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife Habitat

Michael Chandler, district wildlife habitat biologist, Illinois Department of Natural Resources, helped prepare this section.

The soils in Macoupin County support habitat for a variety of wildlife, including pheasant, quail, mourning dove, turkey, white-tailed deer, squirrel, rabbit, songbirds, fox, raccoon, mink, and muskrat. Snipe, heron, and other shore birds inhabit the bottomland areas. The streams and lakes support smallmouth bass, catfish, carp, and sunfish. Many farm ponds are stocked with largemouth bass and bluegill. These ponds provide habitat for migratory ducks in spring and fall as well as habitat for giant Canada geese.

Most areas in the county can be improved for use as wildlife habitat. The map units described in the section “Soil Series and Detailed Soil Map Units” can be grouped into two major wildlife areas. These areas are described in the following paragraphs.

Wildlife area 1.—Buckhart, Keomah, Assumption, Ipava, Virden, Sawmill, Tice, and Coffeen soils are the major soil types in this wildlife area. These soils are nearly level to moderately sloping and are poorly drained to moderately well drained. Sawmill, Tice, and Coffeen soils are subject to flooding.

This wildlife area consists mainly of cropland, much of which is used for corn or soybeans year after year. This area provides habitat for ring-necked pheasant, raccoon, deer, meadowlark, grasshoppers, sparrow, fox, snakes, and other openland wildlife.

The habitat is generally of poor quality because of the lack of crop residue, herbaceous nesting, roosting cover, woody cover, travel lanes, and hedgerows. Wildlife would benefit from delayed mowing of grassy cover on roadsides and ditchbanks and along waterways until after the nesting season. Protection of woody cover and management of crop residue are also important.

Wildlife area 2.—Fayette, Rozetta, Elco, Hickory, Judyville, and Camden soils are the major soil types in this wildlife area. These soils are gently sloping to very steep and are well drained or moderately well drained.

This wildlife area borders the major streams in the county, and it provides much more diversified habitat than wildlife area 1. It consists of cropland, pasture, and forestland. The major game species are ring-necked pheasant, white-tailed deer, mourning dove, bobwhite quail, turkey, fox, squirrel, and rabbit. The nongame species include those that inhabit brushy cover and forestland in addition to those listed in the description of wildlife area 1.

Pasture management, protection of forestland from livestock, crop residue management, and delayed mowing of grassy cover can benefit wildlife in this area.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 14, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface

stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, soybeans, wheat, and oats.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are bromegrass, timothy, orchardgrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, indiangrass, goldenrod, beggarweed, ragweed, and foxtail.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, cherry, cottonwood, apple, hawthorn, hickory, blackberry, elderberry, maple, green ash, and willow. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are American plum, hazelnut, dogwood, and arrowwood.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, cedar, fir, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are waterfowl feeding areas, wildlife watering developments, marshes, and beaver ponds and other wildlife ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include ring-necked pheasant, bobwhite quail, meadowlark, field sparrow, cottontail rabbit, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, thrushes, woodpeckers, owls, tree squirrels, raccoon, woodcock, and white-tailed deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading “Soil Properties.”

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 15a and 15b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear

extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Tables 16a and 16b show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly

level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Table 17 gives information about the soils as potential sources of topsoil and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed. The soils are rated *good, fair,* or *poor* as potential sources of topsoil and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil or roadfill. The lower the number, the greater the limitation.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Water Management

Tables 18a and 18b give information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; aquifer-fed excavated ponds; grassed waterways and surface drains; terraces and diversions; and tile drains and underground outlets. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned

construction (core and shell) are not considered. In table 18a, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Grassed waterways and surface drains are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Tile drains and underground outlets remove excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock or other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur.

Waste Management

Soil properties are important when organic waste is applied as fertilizer and wastewater is applied in irrigated areas. They also are important when the soil is used as a medium for the treatment and disposal of the organic waste and wastewater. Unfavorable soil properties can result in environmental damage.

The use of organic waste and wastewater as production resources results in energy and resource conservation and minimizes the problems associated with waste disposal. If disposal is the goal, applying a maximum amount of the organic waste or the wastewater to a minimal area holds costs to a minimum and environmental damage is the main hazard. If reuse is the goal, a minimum amount should be applied to a maximum area and environmental damage is unlikely.

Interpretations developed for waste management may include ratings for manure, food-processing waste, municipal sewage sludge, use of wastewater for irrigation, and treatment of wastewater by slow rate, overland flow, and rapid infiltration processes.

Specific information regarding waste management is available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

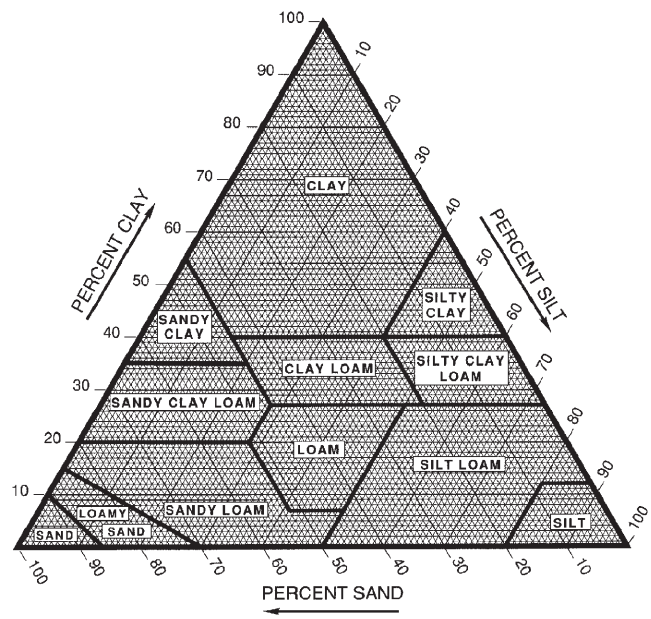


Figure 6.—Percentages of clay, silt, and sand in the basic USDA soil texture classes.

Engineering Index Properties

Table 19 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter (fig. 6). “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and

plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 20 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In table 20, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In table 20, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 20, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In table 20, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in table 20 indicate the rate of water movement, in inches per hour, when

the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^{1}/_{3}$- or $^{1}/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in table 20 as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 20, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 20 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the “National Soil Survey Handbook” (USDA, NRCS).

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 21 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Water Features

Table 22 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

The *months* in table 22 indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 22 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 22 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1

percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 23 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. Table 23 indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.
Ablation till. Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.
AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.
Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.
Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.
Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.
Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.
Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.
Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.
Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.
Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.
Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.
Aspect. The direction in which a slope faces.
Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.
Basal till. Compact glacial till deposited beneath the ice.
Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.
Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).
Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.
Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.
Bottomland. The normal flood plain of a stream, subject to flooding.
Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.
Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition

from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of

puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Depression. A relatively sunken, low area surrounded by higher ground. Unlike an open depression, a closed depression has no natural outlet for surface water.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. A relatively small, linear depression that at some time moves concentrated water and either has no defined channel or has a small defined channel.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

End moraine. A ridgelike accumulation produced at the outer margin of an actively flowing glacier at any given time.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian deposit. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more

gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest habitat type. An association of dominant tree and ground flora species in a climax community.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Geomorphology. The science that treats the general configuration of the earth's surface; specifically, the study of the classification, description, nature, origin, and development of landforms and their relationships to underlying structures and the history of geologic changes as recorded by these surface features. The term is especially applied to the genetic interpretation of landforms.

Glacial drift. Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash. Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glaciofluvial deposits. Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground moraine. An extensive, fairly even layer of till having an uneven or undulating surface; a deposit of rock and mineral debris dragged along in, on, or beneath a glacier.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey

and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

High-chroma zones. Zones having a chroma of 3 or more. Typical color in areas of iron concentrations.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron concentrations. High-chroma zones having a high content of iron and manganese oxide because of chemical oxidation and accumulation, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic concentration.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Lamella. A thin (commonly less than 1 centimeter thick), discontinuous or continuous, generally horizontal layer of fine material (especially clay and iron oxides) that has been pedogenically concentrated (illuviated within a coarser textured eluviated layer several centimeters to several decimeters thick).

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^{1}/_{3}$- or $^{1}/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Low-chroma zones. Zones having chroma of 2 or less. Typical color in areas of iron depletions.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

MAP. Mean annual precipitation, expressed in inches.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine. An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons,

and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Rise. A slight increase in elevation of the land surface, typically with a broad summit and gently sloping sides.

Riser. The relatively short, steeply sloping area below a terrace tread that grades to a lower terrace tread or a base level.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bare bedrock other than rock-lined pits.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the

surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called groundwater runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sawtimber. Hardwood trees more than 11 inches and conifers more than 9 inches in diameter at breast height.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and

sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Steam terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It is originally formed near the level of the stream and consists of the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Swale. A slight depression in the midst of generally level land. On an undulating ground moraine, a shallow depression resulting from uneven glacial deposition.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Till. Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Till plain. An extensive area of nearly level to undulating soils underlain by glacial till.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread. The relatively flat terrace surface that was cut or built by stream or wave action.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1971-2000 at Carlinville, Illinois)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	35.2	18.7	26.9	64	-12	2	1.97	0.78	2.97	4	7.0
February----	42.0	24.1	33.1	71	-8	10	1.95	1.02	2.78	4	4.2
March-------	53.6	33.3	43.5	82	7	63	3.54	2.16	4.77	7	3.4
April-------	66.0	43.3	54.6	86	23	202	3.97	1.99	5.68	7	.7
May---------	75.7	53.0	64.4	90	34	445	4.25	2.17	6.06	7	.0
June--------	84.3	62.1	73.2	96	45	696	3.78	1.97	5.36	6	.0
July--------	87.9	66.2	77.1	99	51	837	3.67	1.74	5.33	5	.0
August------	85.9	63.8	74.9	99	48	771	3.36	1.52	4.94	5	.0
September---	79.5	56.1	67.8	95	35	536	2.90	1.25	4.30	4	.0
October-----	68.0	44.9	56.5	87	24	240	2.67	1.54	3.67	5	.0
November----	52.8	34.8	43.8	77	11	60	3.66	1.91	5.19	6	1.4
December----	40.5	24.8	32.6	68	-5	10	2.92	1.28	4.31	5	4.0
Yearly:											
Average---	64.3	43.8	54.0	---	---	---	---	---	---	---	---
Extreme---	105	-20	---	100	-15	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,872	38.64	28.55	46.18	65	20.7

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Carlinville, Illinois)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than-----	April 9	April 16	May 1
2 years in 10 later than-----	April 4	April 12	April 25
5 years in 10 later than-----	March 24	April 5	April 15
First freezing temperature in fall:			
1 year in 10 earlier than---	Oct. 20	Oct. 10	Sept. 26
2 years in 10 earlier than---	Oct. 27	Oct. 15	Oct. 1
5 years in 10 earlier than---	Nov. 9	Oct. 26	Oct. 11

Table 3.--Growing Season

(Recorded in the period 1971-2000 at Carlinville, Illinois)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	*Days*	*Days*
9 years in 10	204	182	157
8 years in 10	212	189	164
5 years in 10	230	203	178
2 years in 10	247	217	193
1 year in 10	256	225	200

Table 4.--Classification of the Soils

(An asterisk in the first column indicates that at least one map unit of the named soil is a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
*Assumption	Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls
Atlas	Fine, smectitic, mesic Aeric Chromic Vertic Epiaqualfs
Biddle	Fine, smectitic, mesic Aquic Argiudolls
Buckhart	Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls
Bunkum	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Burksville	Fine-silty, mixed, superactive, mesic Typic Epiaqualfs
Camden	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Clarksdale	Fine, smectitic, mesic Udollic Endoaqualfs
*Coatsburg	Fine, smectitic, mesic Vertic Argiaquolls
Coffeen	Coarse-silty, mixed, superactive, mesic Fluvaquentic Hapludolls
Coulterville	Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs
Cowden	Fine, smectitic, mesic Mollic Albaqualfs
Darmstadt	Fine-silty, mixed, superactive, mesic Albic Natraqualfs
Elco	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Fayette	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Fishhook	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Fosterburg	Fine, smectitic, mesic Vertic Argiaquolls
Grantfork	Fine-loamy, mixed, superactive, mesic Aeric Epiaqualfs
Harrison	Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls
Herrick	Fine, smectitic, mesic Aquic Argiudolls
Hickory	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Homen	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Ipava	Fine, smectitic, mesic Aquic Argiudolls
Judyville	Loamy-skeletal, mixed, active, mesic Typic Dystrudepts
Keller	Fine-silty, mixed, superactive, mesic Aquic Argiudolls
Keomah	Fine, smectitic, mesic Aeric Endoaqualfs
Landes	Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls
Lawson	Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls
Marine	Fine, smectitic, mesic Aeric Albaqualfs
Martinsville	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Oconee	Fine, smectitic, mesic Udollic Endoaqualfs
Orthents	Fine-loamy, mixed, active, nonacid, mesic Typic Udorthents
Otter	Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls
Piasa	Fine, smectitic, mesic Mollic Natraqualfs
Pierron	Fine, smectitic, mesic Typic Albaqualfs
Rozetta	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Rushville	Fine, smectitic, mesic Typic Albaqualfs
Sawmill	Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls
Terril	Fine-loamy, mixed, superactive, mesic Cumulic Hapludolls
Velma	Fine-loamy, mixed, superactive, mesic Typic Argiudolls
Virden	Fine, smectitic, mesic Vertic Argiaquolls
Wakeland	Coarse-silty, mixed, superactive, nonacid, mesic Aeric Fluvaquents
Winfield	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Table 5.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
6B2	Fishhook silt loam, 2 to 5 percent slopes, eroded	6,098	1.1
6C2	Fishhook silt loam, 5 to 10 percent slopes, eroded	5,896	1.1
8D2	Hickory loam, 10 to 18 percent slopes, eroded	16,892	3.0
8D3	Hickory clay loam, 10 to 18 percent slopes, severely eroded	43	*
8F	Hickory silt loam, 18 to 35 percent slopes	33,651	6.1
8F2	Hickory loam, 18 to 35 percent slopes, eroded	22,250	4.0
8G	Hickory silt loam, 35 to 60 percent slopes	9,224	1.7
16A	Rushville silt loam, 0 to 2 percent slopes	4,409	0.8
17A	Keomah silt loam, 0 to 2 percent slopes	24,994	4.5
31A	Pierron silt loam, 0 to 2 percent slopes	46	*
43A	Ipava silt loam, 0 to 2 percent slopes	30,933	5.6
46A	Herrick silt loam, 0 to 2 percent slopes	66,181	11.9
50A	Virden silty clay loam, 0 to 2 percent slopes	71,650	12.9
112A	Cowden silt loam, 0 to 2 percent slopes	2,814	0.5
113A	Oconee silt loam, 0 to 2 percent slopes	9,270	1.7
113B	Oconee silt loam, 2 to 5 percent slopes	3,757	0.7
119B2	Elco silt loam, 2 to 5 percent slopes, eroded	1,327	0.2
119C2	Elco silt loam, 5 to 10 percent slopes, eroded	6,641	1.2
119C3	Elco silty clay loam, 5 to 10 percent slopes, severely eroded	2	*
119D2	Elco silt loam, 10 to 18 percent slopes, eroded	1,548	0.3
119D3	Elco silty clay loam, 10 to 18 percent slopes, severely eroded	8	*
127B	Harrison silt loam, 2 to 5 percent slopes	4,455	0.8
134C2	Camden silt loam, 5 to 10 percent slopes, eroded	661	0.1
250D	Velma silt loam, 10 to 18 percent slopes	549	*
257A	Clarksdale silt loam, 0 to 2 percent slopes	5,309	1.0
257B	Clarksdale silt loam, 2 to 5 percent slopes	441	*
259B	Assumption silt loam, 2 to 5 percent slopes	2,050	0.4
259B2	Assumption silt loam, 2 to 5 percent slopes, eroded	1,499	0.3
259C2	Assumption silt loam, 5 to 10 percent slopes, eroded	2,576	0.5
279A	Rozetta silt loam, 0 to 2 percent slopes	8,486	1.5
279B	Rozetta silt loam, 2 to 5 percent slopes	19,253	3.5
279C2	Rozetta silt loam, 5 to 10 percent slopes, eroded	44	*
280B	Fayette silt loam, 2 to 5 percent slopes	1,420	0.3
280C2	Fayette silt loam, 5 to 10 percent slopes, eroded	536	*
470B	Keller silt loam, 2 to 5 percent slopes	6,895	1.2
477B	Winfield silt loam, 2 to 5 percent slopes	357	*
477C2	Winfield silt loam, 5 to 10 percent slopes, eroded	23	*
477C3	Winfield silty clay loam, 5 to 10 percent slopes, severely eroded	11	*
477D3	Winfield silty clay loam, 10 to 18 percent slopes, severely eroded	3	*
515B3	Bunkum silty clay loam, 2 to 5 percent slopes, severely eroded	1	*
515C3	Bunkum silty clay loam, 5 to 10 percent slopes, severely eroded	6	*
515D3	Bunkum silty clay loam, 10 to 18 percent slopes, severely eroded	5	*
517A	Marine silt loam, 0 to 2 percent slopes	25,245	4.5
517B	Marine silt loam, 2 to 5 percent slopes	65	*
536	Dumps, mine	1,313	0.2
570D2	Martinsville sandy loam, 10 to 18 percent slopes, eroded	369	*
582B	Homen silt loam, 2 to 5 percent slopes	23,692	4.3
582C2	Homen silt loam, 5 to 10 percent slopes, eroded	896	0.2
587B	Terril loam, 2 to 5 percent slopes	786	0.1
657A	Burksville silt loam, 0 to 2 percent slopes	869	0.2
660C2	Coatsburg silt loam, 5 to 10 percent slopes, eroded	928	0.2
705B	Buckhart silt loam, 2 to 5 percent slopes	3,494	0.6
713G	Judyville loam, 35 to 60 percent slopes	825	0.1
802B	Orthents, loamy, undulating	748	0.1
802E	Orthents, loamy, hilly	680	0.1
830	Landfills	3	*
880B2	Coulterville-Darmstadt silt loams, 2 to 5 percent slopes, eroded	971	0.2
882B	Oconee-Coulterville-Darmstadt silt loams, 2 to 5 percent slopes	64	*
885A	Virden-Fosterburg silt loams, 0 to 2 percent slopes	4,850	0.9
894A	Herrick-Biddle-Piasa silt loams, 0 to 2 percent slopes	34,584	6.2
897C2	Bunkum-Atlas silt loams, 5 to 10 percent slopes, eroded	11,459	2.1

See footnote at end of table.

Table 5.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
897C3	Bunkum-Atlas silty clay loams, 5 to 10 percent slopes, severely eroded	898	0.2
897D2	Bunkum-Atlas silt loams, 10 to 18 percent slopes, eroded	5,934	1.1
897D3	Bunkum-Atlas silty clay loams, 10 to 18 percent slopes, severely eroded	6	*
914C3	Atlas-Grantfork silty clay loams, 5 to 10 percent slopes, severely eroded	10	*
993A	Cowden-Piasa silt loams, 0 to 2 percent slopes	17,812	3.2
3076A	Otter silt loam, 0 to 2 percent slopes, frequently flooded	1,970	0.4
3107A	Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded	1,967	0.4
3304A	Landes fine sandy loam, 0 to 2 percent slopes, frequently flooded	1,734	0.3
3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded	10,894	2.0
3428A	Coffeen silt loam, 0 to 2 percent slopes, frequently flooded	11,579	2.1
3451A	Lawson silt loam, 0 to 2 percent slopes, frequently flooded	12,110	2.2
9017A	Keomah silt loam, terrace, 0 to 2 percent slopes	87	*
9257A	Clarksdale silt loam, terrace, 0 to 2 percent slopes	182	*
9279B	Rozetta silt loam, terrace, 2 to 5 percent slopes	653	0.1
	Water	5,359	1.0
	Total	555,250	100.0

* Less than 0.1 percent.

Table 6.--Limitations and Hazards Affecting Cropland and Pasture

(See text for a description of the limitations and hazards listed in this table. Miscellaneous areas and map units generally not available for crop or pasture production are excluded from the table. Absence of an entry indicates that the map unit is generally unsuited to crops or pasture.)

Soil name and map symbol	Limitations and hazards affecting cropland	Limitations and hazards affecting pasture
6B2, 6C2:		
Fishhook	Wetness, crusting, water erosion	Wetness, low pH, water erosion
8D2:		
Hickory	Crusting, water erosion	Low pH, water erosion
8D3:		
Hickory	Poor tilth, crusting, water erosion	Poor tilth, low pH, water erosion, low fertility
8F, 8F2:		
Hickory	---	Equipment limitation, low pH, water erosion
8G:		
Hickory	---	---
16A:		
Rushville	Ponding, crusting	Ponding, low pH, frost heave
17A:		
Keomah	Wetness, crusting	Wetness, low pH
31A:		
Pierron	Ponding, low pH, crusting	Ponding, low pH, frost heave
43A:		
Ipava	Wetness	NA*
46A:		
Herrick	Wetness	NA*
50A:		
Virden	Ponding, poor tilth	NA*
112A:		
Cowden	Ponding, crusting	Ponding, low pH, frost heave
113A:		
Oconee	Wetness, crusting	Wetness, low pH
113B:		
Oconee	Wetness, crusting, water erosion	Wetness, low pH, water erosion
119B2, 119C2:		
Elco	Crusting, water erosion	Low pH, water erosion
119C3:		
Elco	Poor tilth, crusting, water erosion	Poor tilth, low pH, water erosion, low fertility
119D2:		
Elco	Crusting, water erosion	Low pH, water erosion

See footnotes at end of table.

Table 6.--Limitations and Hazards Affecting Cropland and Pasture--Continued

Soil name and map symbol	Limitations and hazards affecting cropland	Limitations and hazards affecting pasture
119D3:		
Elco	Poor tilth, crusting, water erosion	Poor tilth, low pH, water erosion, low fertility
127B:		
Harrison	Water erosion	Low pH
134C2:		
Camden	Crusting, water erosion	Low pH, water erosion
250D:		
Velma	Water erosion	Low pH, water erosion
257A:		
Clarksdale	Wetness, crusting	Wetness, low pH
257B:		
Clarksdale	Wetness, crusting, water erosion	Wetness, low pH, water erosion
259B:		
Assumption	Water erosion	Low pH
259B2, 259C2:		
Assumption	Crusting, water erosion	Low pH, water erosion
279A:		
Rozetta	Crusting	Low pH
279B, 279C2:		
Rozetta	Crusting, water erosion	Low pH, water erosion
280B, 280C2:		
Fayette	Crusting, water erosion	Low pH, water erosion
470B:		
Keller	Wetness, water erosion	Wetness, low pH
477B, 477C2:		
Winfield	Crusting, water erosion	Low pH, water erosion
477C3, 477D3:		
Winfield	Poor tilth, crusting, water erosion	Poor tilth, low pH, water erosion, low fertility
515B3, 515C3, 515D3:		
Bunkum	Wetness, poor tilth, crusting, water erosion	Wetness, poor tilth, low pH, water erosion, low fertility
517A:		
Marine	Wetness	Wetness, low pH
517B:		
Marine	Wetness, water erosion	Wetness, low pH, water erosion
570D2:		
Martinsville	Water erosion	Low pH, water erosion
582B, 582C2:		
Homen	Crusting, water erosion	Low pH, water erosion

See footnotes at end of table.

Table 6.--Limitations and Hazards Affecting Cropland and Pasture--Continued

Soil name and map symbol	Limitations and hazards affecting cropland	Limitations and hazards affecting pasture
587B:		
Terril	Water erosion	Water erosion
657A:		
Burksville	Ponding, high pH, crusting, excess sodium	NA*
660C2:		
Coatsburg	Wetness, water erosion	Wetness, low pH, water erosion, frost heave
705B:		
Buckhart	Water erosion	None**
713G:		
Judyville	---	---
880B2:		
Coulterville	Wetness, high pH, crusting, water erosion, excess sodium	Wetness, high pH, water erosion, excess sodium
Darmstadt	Wetness, high pH, crusting, water erosion, excess sodium	Wetness, high pH, water erosion, excess sodium
882B:		
Oconee	Wetness, crusting, water erosion	Wetness, low pH, water erosion
Coulterville	Wetness, high pH, crusting, water erosion, excess sodium	Wetness, high pH, water erosion, excess sodium
Darmstadt	Wetness, high pH, crusting, water erosion, excess sodium	Wetness, high pH, water erosion, excess sodium
885A:		
Virden	Ponding	NA*
Fosterburg	Ponding, high pH, excess sodium	NA*
894A:		
Herrick	Wetness	NA*
Biddle	Wetness, high pH, excess sodium	NA*
Piasa	Ponding, high pH, excess sodium	NA*
897C2:		
Bunkum	Wetness, crusting, water erosion	Wetness, low pH, water erosion
Atlas	Wetness, crusting, water erosion	Wetness, low pH, water erosion

See footnotes at end of table.

Table 6.--Limitations and Hazards Affecting Cropland and Pasture--Continued

Soil name and map symbol	Limitations and hazards affecting cropland	Limitations and hazards affecting pasture
897C3:		
Bunkum	Wetness, poor tilth, crusting, water erosion	Wetness, poor tilth, low pH, water erosion, low fertility
Atlas	Wetness, poor tilth, water erosion	Wetness, poor tilth, low pH, water erosion, low fertility
897D2:		
Bunkum	Wetness, crusting, water erosion	Wetness, low pH, water erosion
Atlas	Wetness, crusting, water erosion	Wetness, low pH, water erosion
897D3:		
Bunkum	---	Wetness, poor tilth, low pH, water erosion, low fertility
Atlas	---	Wetness, poor tilth, low pH, water erosion, low fertility
914C3:		
Atlas	---	Wetness, poor tilth, low pH, water erosion, low fertility
Grantfork	---	Wetness, poor tilth, high pH, water erosion, excess sodium, low fertility
993A:		
Cowden	Ponding, crusting	NA*
Piasa	Ponding, high pH, excess sodium	NA*
3076A:		
Otter	Flooding, ponding	Flooding, ponding, frost heave
3107A:		
Sawmill	Flooding, ponding, poor tilth	Flooding, ponding, frost heave, poor tilth
3304A:		
Landes	Flooding, high pH, excessive permeability	Flooding, high pH
3333A:		
Wakeland	Flooding, wetness	Flooding, wetness
3428A:		
Coffeen	Flooding, wetness	Flooding, wetness
3451A:		
Lawson	Flooding, wetness	Flooding, wetness

See footnotes at end of table.

Table 6.--Limitations and Hazards Affecting Cropland and Pasture--Continued

Soil name and map symbol	Limitations and hazards affecting cropland	Limitations and hazards affecting pasture
9017A:		
Keomah-------------------	Wetness, crusting	Wetness, low pH
9257A:		
Clarksdale---------------	Wetness, crusting	Wetness, low pH
9279B:		
Rozetta------------------	Crusting, water erosion	Low pH, water erosion

* Pasture is not a major use.
** This soil is well suited to pasture.

Table 7.--Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	*Bu*	*Bu*	*Tons*	*AUM*
6B2:						
Fishhook------------	2e	71	21	23	2.4	4.1
6C2:						
Fishhook------------	3e	69	20	22	2.4	3.9
8D2:						
Hickory-------------	3e	71	23	26	2.7	4.5
8D3:						
Hickory-------------	4e	65	21	23	2.4	4.0
8F:						
Hickory-------------	6e	---	---	---	2.2	3.6
8F2:						
Hickory-------------	6e	---	---	---	2.1	3.5
8G:						
Hickory-------------	7e	---	---	---	---	---
16A:						
Rushville-----------	3w	114	36	---	4.2	7.0
17A:						
Keomah--------------	2w	129	39	52	5.1	8.5
31A:						
Pierron-------------	3w	100	30	---	3.7	6.2
43A:						
Ipava---------------	1	163	52	66	---	---
46A:						
Herrick-------------	2w	141	45	61	---	---
50A:						
Virden--------------	2w	138	46	---	---	---
112A:						
Cowden--------------	3w	120	37	---	4.8	8.0
113A:						
Oconee--------------	2w	120	36	54	5.0	8.3
113B:						
Oconee--------------	2e	119	36	53	4.9	8.2
119B2:						
Elco----------------	2e	108	36	45	4.2	7.0
119C2:						
Elco----------------	3e	105	35	44	4.1	6.9
119C3:						
Elco----------------	4e	97	32	41	3.8	6.4

Table 7.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	*Bu*	*Bu*	*Tons*	*AUM*
119D2:						
Elco----------------	3e	100	33	42	3.9	6.5
119D3:						
Elco----------------	4e	91	30	38	3.6	5.9
127B:						
Harrison------------	2e	135	42	58	5.2	8.7
134C2:						
Camden--------------	3e	118	37	52	4.7	7.8
250D:						
Velma---------------	3e	109	36	47	4.2	7.0
257A:						
Clarksdale----------	1	140	43	57	5.3	8.8
257B:						
Clarksdale----------	2e	139	43	56	5.2	8.7
259B:						
Assumption----------	2e	127	39	55	5.0	8.3
259B2:						
Assumption----------	2e	123	37	54	4.8	8.0
259C2:						
Assumption----------	3e	120	37	53	4.7	7.8
279A:						
Rozetta-------------	1	131	40	54	5.2	8.6
279B:						
Rozetta-------------	2e	130	40	53	5.1	8.6
279C2:						
Rozetta-------------	3e	123	38	51	4.9	8.2
280B:						
Fayette-------------	2e	128	39	52	5.1	8.6
280C2:						
Fayette-------------	3e	121	37	50	4.9	8.1
470B:						
Keller--------------	2e	93	33	44	4.0	6.6
477B:						
Winfield------------	2e	127	40	52	4.9	8.1
477C2:						
Winfield------------	3e	120	38	50	4.6	7.7
477C3:						
Winfield------------	4e	114	35	47	4.5	7.6
477D3:						
Winfield------------	4e	106	33	43	4.0	6.5
515B3:						
Bunkum--------------	3e	88	33	42	3.4	5.6

Table 7.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	*Bu*	*Bu*	*Tons*	*AUM*
515C3:						
Bunkum--------------	4e	86	32	41	3.3	5.5
515D3:						
Bunkum--------------	4e	80	30	38	3.1	5.1
517A:						
Marine--------------	2w	102	30	43	3.6	7.2
517B:						
Marine--------------	2e	101	30	43	3.6	7.1
536:						
Dumps.						
570D2:						
Martinsville--------	4e	108	33	45	4.3	7.1
582B:						
Homen---------------	2e	101	34	48	4.1	6.8
582C2:						
Homen---------------	3e	96	32	45	3.8	6.4
587B:						
Terril--------------	2e	140	44	58	5.3	8.9
657A:						
Burksville----------	3w	95	30	---	---	---
660C2:						
Coatsburg-----------	3e	75	24	---	3.0	5.0
705B:						
Buckhart------------	2e	158	48	62	5.9	9.8
713G:						
Judyville-----------	7e	---	---	---	---	---
802B:						
Orthents------------	2e	---	---	---	---	---
802E:						
Orthents------------	6e	---	---	---	---	---
830:						
Landfills.						
880B2----------------		87	30	39	3.2	5.3
Coulterville--------	2e					
Darmstadt-----------	3e					
882B-----------------		104	33	47	4.1	7.1
Oconee--------------	2e					
Coulterville--------	2e					
Darmstadt-----------	3e					
885A-----------------		136	42	---	---	---
Virden--------------	2w					
Fosterburg----------	3w					

Table 7.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	*Bu*	*Bu*	*Tons*	*AUM*
894A-----------------		121	39	54	---	---
Herrick-------------	2w					
Biddle--------------	2w					
Piasa---------------	3w					
897C2:						
Bunkum-Atlas--------	3e	77	28	34	3.3	5.4
897C3:						
Bunkum-Atlas--------	4e	72	26	32	3.2	5.1
897D2:						
Bunkum-Atlas--------	4e	71	26	32	2.8	4.5
897D3:						
Bunkum-Atlas--------	6e	---	---	---	2.4	4.0
914C3----------------		---	---	---	1.8	3.0
Atlas---------------	4e					
Grantfork-----------	6e					
993A:						
Cowden-Piasa--------	3w	98	32	---	---	---
3076A:						
Otter---------------	3w	129	41	---	4.2	7.1
3107A:						
Sawmill-------------	4w	132	42	---	5.0	8.3
3304A:						
Landes--------------	3w	67	23	---	2.5	4.1
3333A:						
Wakeland------------	3w	122	40	51	4.7	7.8
3428A:						
Coffeen-------------	3w	137	42	51	5.2	8.7
3451A:						
Lawson--------------	3w	145	43	56	5.7	8.6
9017A:						
Keomah--------------	2w	129	39	52	5.1	8.5
9257A:						
Clarksdale----------	1	161	48	63	6.1	10.2
9279B:						
Rozetta-------------	2e	130	40	53	5.1	8.6

Table 8.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Soil name
17A	Keomah silt loam, 0 to 2 percent slopes (where drained)
43A	Ipava silt loam, 0 to 2 percent slopes
46A	Herrick silt loam, 0 to 2 percent slopes
50A	Virden silty clay loam, 0 to 2 percent slopes (where drained)
112A	Cowden silt loam, 0 to 2 percent slopes (where drained)
113A	Oconee silt loam, 0 to 2 percent slopes (where drained)
113B	Oconee silt loam, 2 to 5 percent slopes
119B2	Elco silt loam, 2 to 5 percent slopes, eroded
127B	Harrison silt loam, 2 to 5 percent slopes
257A	Clarksdale silt loam, 0 to 2 percent slopes (where drained)
257B	Clarksdale silt loam, 2 to 5 percent slopes
259B	Assumption silt loam, 2 to 5 percent slopes
259B2	Assumption silt loam, 2 to 5 percent slopes, eroded
279A	Rozetta silt loam, 0 to 2 percent slopes
279B	Rozetta silt loam, 2 to 5 percent slopes
280B	Fayette silt loam, 2 to 5 percent slopes
470B	Keller silt loam, 2 to 5 percent slopes
477B	Winfield silt loam, 2 to 5 percent slopes
517A	Marine silt loam, 0 to 2 percent slopes (where drained)
517B	Marine silt loam, 2 to 5 percent slopes
582B	Homen silt loam, 2 to 5 percent slopes
587B	Terril loam, 2 to 5 percent slopes
657A	Burksville silt loam, 0 to 2 percent slopes (where drained)
705B	Buckhart silt loam, 2 to 5 percent slopes
885A	Virden-Fosterburg silt loams, 0 to 2 percent slopes (where drained)
3076A	Otter silt loam, 0 to 2 percent slopes, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
3107A	Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
3304A	Landes fine sandy loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
3428A	Coffeen silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3451A	Lawson silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
9017A	Keomah silt loam, terrace, 0 to 2 percent slopes (where drained)
9257A	Clarksdale silt loam, terrace, 0 to 2 percent slopes (where drained)
9279B	Rozetta silt loam, terrace, 2 to 5 percent slopes

Table 9.--Hydric Soils

Map symbol and map unit name	Component	Hydric	Local landform
16A:			
Rushville silt loam, 0 to 2 percent slopes	Rushville	Yes	Ground moraines, depressions
17A:			
Keomah silt loam, 0 to 2 percent slopes	Keomah	No	Ground moraines
	Rushville	Yes	Depressions
31A:			
Pierron silt loam, 0 to 2 percent slopes	Pierron	Yes	Ground moraines, depressions
43A:			
Ipava silt loam, 0 to 2 percent slopes	Ipava	No	Ground moraines
	Virden	Yes	Depressions
46A:			
Herrick silt loam, 0 to 2 percent slopes	Herrick	No	Ground moraines
	Virden	Yes	Depressions
	Piasa	Yes	Depressions
	Cowden	Yes	Depressions
50A:			
Virden silty clay loam, 0 to 2 percent slopes	Virden	Yes	Ground moraines
112A:			
Cowden silt loam, 0 to 2 percent slopes	Cowden	Yes	Ground moraines
113A:			
Oconee silt loam, 0 to 2 percent slopes	Oconee	No	Ground moraines
	Cowden	Yes	Depressions
	Piasa	Yes	Depressions
257A:			
Clarksdale silt loam, 0 to 2 percent slopes	Clarksdale	No	Ground moraines
	Virden	Yes	Depressions
517A:			
Marine silt loam, 0 to 2 percent slopes	Marine	No	Ground moraines
	Pierron	Yes	Depressions
	Rushville	Yes	Depressions
657A:			
Burksville silt loam, 0 to 2 percent slopes	Burksville	Yes	Ground moraines
660C2:			
Coatsburg silt loam, 5 to 10 percent slopes, eroded	Coatsburg	Yes	Ground moraines
882B:			
Oconee-Coulterville-Darmstadt silt loams, 2 to 5 percent slopes	Oconee	No	Ground moraines
	Counter-ville	No	Ground moraines
	Darmstadt	No	Ground moraines
	Burksville	Yes	Ground moraines
885A:			
Virden-Fosterburg silt loams, 0 to 2 percent slopes	Virden	Yes	Ground moraines
	Fosterburg	Yes	Ground moraines
894A:			
Herrick-Biddle-Piasa silt loams, 0 to 2 percent slopes	Herrick	No	Ground moraines
	Biddle	No	Ground moraines
	Piasa	Yes	Ground moraines

Table 9.--Hydric Soils--Continued

Map symbol and map unit name	Component	Hydric	Local landform
993A:			
Cowden-Piasa silt loams, 0 to 2 percent slopes	Cowden	Yes	Ground moraines
	Piasa	Yes	Ground moraines
3076A:			
Otter silt loam, 0 to 2 percent slopes, frequently flooded	Otter	Yes	Flood plains
3107A:			
Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded	Sawmill	Yes	Flood plains
3333A:			
Wakeland silt loam, 0 to 2 percent slopes, frequently flooded	Wakeland	No	Flood plains
	Sawmill	Yes	Swales
3428A:			
Coffeen silt loam, 0 to 2 percent slopes, frequently flooded	Coffeen	No	Flood plains
	Sawmill	Yes	Swales
3451A:			
Lawson silt loam, 0 to 2 percent slopes, frequently flooded	Lawson	No	Flood plains
	Sawmill	Yes	Swales
9017A:			
Keomah silt loam, terrace, 0 to 2 percent slopes	Keomah	No	Stream terraces
	Sawmill	Yes	Flood plains
9257A:			
Clarksdale silt loam, terrace, 0 to 2 percent slopes	Clarksdale	No	Stream terraces
	Sawmill	Yes	Flood plains
9279B:			
Rozetta silt loam, terrace, 2 to 5 percent slopes	Rozetta	No	Stream terraces
	Sawmill	Yes	Flood plains

Table 10.--Windbreaks and Environmental Plantings

(Absence of an entry indicates that trees generally do not grow to the given height on the soil.)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
6B2, 6C2: Fishhook	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern whitecedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
8D2, 8D3, 8F, 8F2, 8G: Hickory	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
16A: Rushville	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern whitecedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
17A: Keomah	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
31A:					
Pierron	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern whitecedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
43A:					
Ipava	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
46A:					
Herrick	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
50A:					
Virden	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern whitecedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
112A:					
Cowden	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern whitecedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
113A, 113B:					
Oconee	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern whitecedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
119B2, 119C2, 119C3, 119D2, 119D3:					
Elco	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
127B:					
Harrison	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
134C2:					
Camden	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
250D:					
Velma	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
257A, 257B:					
Clarksdale	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
259B, 259B2, 259C2:					
Assumption	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
279A, 279B, 279C2:					
Rozetta	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
280B, 280C2: Fayette	American hazelnut, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, black walnut, blackgum, common hackberry, green ash, northern red oak, norway spruce, pin oak, red pine, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
470B: Keller	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern whitecedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
477B, 477C2, 477C3, 477D3: Winfield	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
515B3, 515C3, 515D3: Bunkum	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
517A, 517B: Marine	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern whitecedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
536: Dumps.					
570D2: Martinsville	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
582B, 582C2: Homen	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
587B: Terril	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
657A: Burksville	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern whitecedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
660C2: Coatsburg	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
705B: Buckhart	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
713G: Judyville	American cranberrybush, American hazelnut, black chokeberry, common chokecherry, common elderberry, common juniper, coralberry, mapleleaf viburnum, silky dogwood	American plum, bur oak, chinkapin oak, common serviceberry, eastern redcedar, nannyberry, prairie crabapple, roughleaf dogwood, smooth sumac	Black oak, common hackberry, eastern white pine, green ash	Carolina poplar	---
802B, 802E: Orthents.					
830: Landfills.					

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
880B2:					
Coulterville--	Common juniper	American hazelnut, common serviceberry, common winterberry, eastern redcedar, prairie crabapple	Douglas fir, blue spruce, eastern white pine, green ash	---	---
Darmstadt-----	Common juniper	American hazelnut, common serviceberry, common winterberry, eastern redcedar, prairie crabapple	Douglas fir, blue spruce, eastern white pine, green ash	---	---
882B:					
Oconee--------	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
Coulterville--	Common juniper	American hazelnut, common serviceberry, common winterberry, eastern redcedar, prairie crabapple	Douglas fir, blue spruce, eastern white pine, green ash	---	---
Darmstadt-----	Common juniper	American hazelnut, common serviceberry, common winterberry, eastern redcedar, prairie crabapple	Douglas fir, blue spruce, eastern white pine, green ash	---	---
885A:					
Virden--------	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern whitecedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
885A:					
Fosterburg	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern whitecedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
894A:					
Herrick	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
Biddle	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
Piasa	Common juniper	American hazelnut, common serviceberry, common winterberry, eastern redcedar, prairie crabapple	Douglas fir, blue spruce, eastern white pine, green ash	---	---
897C2, 897C3, 897D2, 897D3:					
Bunkum	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
897C2, 897C3, 897D2, 897D3:					
Atlas	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
914C3:					
Atlas	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
Grantfork	Common juniper	American hazelnut, common serviceberry, common winterberry, eastern redcedar, prairie crabapple	Douglas fir, blue spruce, eastern white pine, green ash	---	---
993A:					
Cowden	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern whitecedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
Piasa	Common juniper	American hazelnut, common serviceberry, common winterberry, eastern redcedar, prairie crabapple	Douglas fir, blue spruce, eastern white pine, green ash	---	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
3076A: Otter	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern whitecedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3107A: Sawmill	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3304A: Landes	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3333A: Wakeland	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
3428A: Coffeen	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3451A: Lawson	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
9017A: Keomah	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern whitecedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
9257A: Clarksdale	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
9279B: Rozetta	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 11.--Forestland Productivity

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Suggested trees to plant
			cu ft/acre	
6B2, 6C2:				
Fishhook	White oak	70	57	Common hackberry, eastern cottonwood, green ash, pin oak, river birch, swamp white oak.
	Northern red oak	70	57	
	Bur oak	---	---	
	Green ash	---	---	
8D2, 8D3, 8F, 8F2, 8G:				
Hickory	Northern red oak	85	72	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak.
	Tuliptree	95	100	
	White oak	85	72	
	Bitternut hickory	---	---	
	Black oak	---	---	
	Green ash			
16A:				
Rushville	---	---	---	Common hackberry, eastern cottonwood, green ash, pin oak, river birch, swamp white oak.
17A:				
Keomah	Northern red oak	70	57	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak.
	White oak	65	43	
31A:				
Pierron	---	---	---	Common hackberry, eastern cottonwood, green ash, pin oak, river birch, swamp white oak.
43A:				
Ipava	---	---	---	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak.
46A:				
Herrick	---	---	---	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak.
50A:				
Virden	---	---	---	Common hackberry, eastern cottonwood, green ash, pin oak, river birch, swamp white oak.
112A:				
Cowden	---	---	---	Common hackberry, eastern cottonwood, green ash, pin oak, river birch, swamp white oak.

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Suggested trees to plant
			cu ft/acre	
113A, 113B:				
Oconee	---	---	---	Common hackberry, eastern cottonwood, green ash, pin oak, river birch, swamp white oak.
119B2, 119C2, 119C3, 119D2, 119D3:				
Elco	White oak	80	57	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak.
	Northern red oak	---	---	
	Black walnut	---	---	
127B:				
Harrison	---	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak.
134C2:				
Camden	Northern red oak	85	72	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak.
	White oak	85	72	
	Green ash	76	72	
	Tuliptree	95	100	
250D:				
Velma	---	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak.
257A, 257B:				
Clarksdale	White oak	80	57	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak.
	Northern red oak	80	57	
259B, 259B2, 259C2:				
Assumption	---	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak.
279A, 279B, 279C2:				
Rozetta	White oak	80	57	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak.
	Northern red oak	80	57	
	Tuliptree	90	86	
	Black walnut	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			Suggested trees to plant
	Common trees	Site index	Volume of wood fiber	
			cu ft/acre	
280B, 280C2:				
Fayette	White oak	80	57	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak.
	Northern red oak	80	57	
	Tuliptree	90	86	
	Black walnut	---	---	
470B:				
Keller	---	---	---	Common hackberry, eastern cottonwood, green ash, pin oak, river birch, swamp white oak.
477B, 477C2, 477C3, 477D3:				
Winfield	Black oak	65	43	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak.
	Northern red oak	60	43	
	White oak	65	43	
515B3, 515C3, 515D3:				
Bunkum	White oak	75	57	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak.
517A, 517B:				
Marine	Northern red oak	70	57	Common hackberry, eastern cottonwood, green ash, pin oak, river birch, swamp white oak.
	Post oak	70	57	
	Shagbark hickory	---	---	
536:				
Dumps.				
570D2:				
Martinsville	White oak	80	57	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak.
	Tuliptree	98	100	
582B, 582C2:				
Homen	White oak	75	57	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak.
587B:				
Terril	---	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak.

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Suggested trees to plant
			cu ft/acre	
657A:				
Burksville	White oak	70	57	Common hackberry, eastern cottonwood, green ash, pin oak, river birch, swamp white oak.
	Green ash	60	57	
	Eastern cottonwood	---	---	
660C2:				
Coatsburg	---	---	---	Black oak, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash.
705B:				
Buckhart	---	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak.
713G:				
Judyville	Northern red oak	60	43	Black oak, common hackberry, eastern white pine, green ash.
	Black oak	60	43	
802B, 802E:				
Orthents.				
830:				
Landfills.				
880B2:				
Coulterville	White oak	70	57	Rocky Mountain Douglas-fir, blue spruce, eastern redcedar, eastern white pine, green ash.
	Pignut hickory	---	---	
	Post oak	---	---	
	Black oak	---	---	
Darmstadt	Black oak	70	57	Rocky Mountain Douglas-fir, blue spruce, eastern redcedar, eastern white pine, green ash.
	White oak	70	57	
	Post oak	---	---	
	Pignut hickory	---	---	
882B:				
Oconee	---	---	---	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak.
Coulterville	White oak	70	57	Rocky Mountain Douglas-fir, blue spruce, eastern redcedar, eastern white pine, green ash.
	Pignut hickory	---	---	
	Post oak	---	---	
	Black oak	---	---	
Darmstadt	Black oak	70	57	Rocky Mountain Douglas-fir, blue spruce, eastern redcedar, eastern white pine, green ash.
	White oak	70	57	
	Post oak	---	---	
	Pignut hickory	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Suggested trees to plant
			cu ft/acre	
885A:				
Virden	---	---	---	Common hackberry, eastern cottonwood, green ash, pin oak, river birch, swamp white oak.
Fosterburg	---	---	---	Common hackberry, eastern cottonwood, green ash, pin oak, river birch, swamp white oak.
894A:				
Herrick	---	---	---	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak.
Biddle	---	---	---	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak.
Piasa	---	---	---	Rocky Mountain Douglas-fir, blue spruce, eastern redcedar, eastern white pine, green ash.
897C2, 897C3, 897D2, 897D3:				
Bunkum	White oak	75	57	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak.
Atlas	Bur oak	70	57	Black oak, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash.
	White oak	70	57	
	Northern red oak	70	57	
	Green ash	---	---	
914C3:				
Atlas	Bur oak	70	57	Black oak, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash.
	White oak	70	57	
	Northern red oak	70	57	
	Green ash	---	---	
Grantfork	Black oak	70	57	Rocky Mountain Douglas-fir, blue spruce, eastern redcedar, eastern white pine, green ash.
	Post oak	---	---	
	Shagbark hickory	---	---	
993A:				
Cowden	---	---	---	Common hackberry, eastern cottonwood, green ash, pin oak, river birch, swamp white oak.

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Suggested trees to plant
			cu ft/acre	
993A:				
Piasa	---	---	---	Rocky Mountain Douglas-fir, blue spruce, eastern redcedar, eastern white pine, green ash.
3076A:				
Otter	Silver maple	94	43	Common hackberry, eastern cottonwood, green ash, pin oak, river birch, swamp white oak.
3107A:				
Sawmill	Pin oak	90	72	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak.
	American sycamore	---	---	
	Eastern cottonwood	---	---	
3304A:				
Landes	Tuliptree	95	100	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak.
	Eastern cottonwood	105	143	
	Green ash	---	---	
	American sycamore	---	---	
3333A:				
Wakeland	Pin oak	90	72	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak.
	Boxelder	---	---	
	Green ash	---	---	
3428A:				
Coffeen	Eastern cottonwood	100	---	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak.
	Pin oak	90	72	
	Green ash	---	---	
3451A:				
Lawson	Silver maple	70	29	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak.
	White ash	---	---	
9017A:				
Keomah	Northern red oak	70	57	Black oak, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash.
	White oak	65	43	
9257A:				
Clarksdale	Northern red oak	80	57	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak.
	White oak	80	57	
	Tuliptree	90	86	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			Suggested trees to plant
	Common trees	Site index	Volume of wood fiber	
			cu ft/acre	
9279B:				
Rozetta	Northern red oak	80	57	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak.
	White oak	80	57	
	Tuliptree	90	86	
	Black walnut	---	---	

Table 12a.--Forest Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
6B2, 6C2:						
Fishhook------------	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Wetness	0.50		
8D2, 8D3:						
Hickory-------------	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
8F, 8F2:						
Hickory-------------	Moderate		Poorly suited		Severe	
	Slope	0.50	Slope	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
8G:						
Hickory-------------	Severe		Poorly suited		Severe	
	Slope	1.00	Slope	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
16A:						
Rushville-----------	Moderate		Poorly suited		Severe	
	Low strength	0.50	Ponding	1.00	Low strength	1.00
			Wetness	1.00		
			Low strength	0.50		
17A:						
Keomah--------------	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		
31A:						
Pierron-------------	Moderate		Poorly suited		Severe	
	Low strength	0.50	Ponding	1.00	Low strength	1.00
			Wetness	1.00		
			Low strength	0.50		
43A:						
Ipava---------------	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Wetness	0.50		
46A:						
Herrick-------------	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Wetness	0.50		
50A:						
Virden--------------	Moderate		Poorly suited		Severe	
	Low strength	0.50	Ponding	1.00	Low strength	1.00
			Wetness	1.00		
			Low strength	0.50		

Table 12a.--Forest Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
112A:						
Cowden	Moderate		Poorly suited		Severe	
	Low strength	0.50	Ponding	1.00	Low strength	1.00
			Wetness	1.00		
			Low strength	0.50		
113A, 113B:						
Oconee	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		
119B2:						
Elco	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
119C2, 119C3:						
Elco	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Slope	0.50		
119D2, 119D3:						
Elco	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
127B:						
Harrison	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
134C2:						
Camden	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Slope	0.50		
250D:						
Velma	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
257A, 257B:						
Clarksdale	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		
259B, 259B2:						
Assumption	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
259C2:						
Assumption	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Slope	0.50		
279A, 279B:						
Rozetta	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00

Table 12a.--Forest Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
279C2:						
Rozetta	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Slope	0.50		
280B:						
Fayette	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
280C2:						
Fayette	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Slope	0.50		
470B:						
Keller	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Wetness	0.50		
477B:						
Winfield	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
477C2, 477C3:						
Winfield	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Slope	0.50		
477D3:						
Winfield	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
515B3:						
Bunkum	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Wetness	0.50		
515C3:						
Bunkum	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Slope	0.50		
			Wetness	0.50		
515D3:						
Bunkum	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
			Wetness	0.50		
517A, 517B:						
Marine	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		
536:						
Dumps	Not rated		Not rated		Not rated	

Table 12a.--Forest Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
570D2:						
Martinsville	Slight		Poorly suited		Moderate	
			Slope	1.00	Low strength	0.50
582B:						
Homen	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
582C2:						
Homen	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Slope	0.50		
587B:						
Terril	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
657A:						
Burksville	Moderate		Poorly suited		Severe	
	Low strength	0.50	Ponding	1.00	Low strength	1.00
			Wetness	1.00		
			Low strength	0.50		
660C2:						
Coatsburg	Moderate		Poorly suited		Severe	
	Low strength	0.50	Wetness	1.00	Low strength	1.00
			Low strength	0.50		
			Slope	0.50		
705B:						
Buckhart	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
713G:						
Judyville	Severe		Poorly suited		Severe	
	Slope	1.00	Slope	1.00	Low strength	1.00
			Low strength	0.50		
802B:						
Orthents	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
802E:						
Orthents	Moderate		Poorly suited		Severe	
	Slope	0.50	Slope	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
830:						
Landfills	Not rated		Not rated		Not rated	
880B2:						
Coulterville	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		
Darmstadt	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		

Table 12a.--Forest Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
882B:						
Oconee	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		
Coulterville	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		
Darmstadt	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		
885A:						
Virden	Moderate		Poorly suited		Severe	
	Low strength	0.50	Ponding	1.00	Low strength	1.00
			Wetness	1.00		
			Low strength	0.50		
Fosterburg	Moderate		Poorly suited		Severe	
	Low strength	0.50	Ponding	1.00	Low strength	1.00
			Wetness	1.00		
			Low strength	0.50		
894A:						
Herrick	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Wetness	0.50		
Biddle	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Wetness	0.50		
Piasa	Moderate		Poorly suited		Severe	
	Low strength	0.50	Ponding	1.00	Low strength	1.00
			Wetness	1.00		
			Low strength	0.50		
897C2:						
Bunkum	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Slope	0.50		
			Wetness	0.50		
Atlas	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		
			Slope	0.50		
897C3:						
Bunkum	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Slope	0.50		
			Wetness	0.50		

Table 12a.--Forest Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
897C3:						
Atlas	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
	Stickiness/slope	0.50	Low strength	0.50		
			Slope	0.50		
			Stickiness	0.50		
897D2:						
Bunkum	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
			Wetness	0.50		
Atlas	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Wetness	0.50		
			Low strength	0.50		
897D3:						
Bunkum	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
			Wetness	0.50		
Atlas	Moderate		Poorly suited		Severe	
	Stickiness/slope	0.50	Slope	1.00	Low strength	1.00
	Low strength	0.50	Wetness	0.50		
			Low strength	0.50		
			Stickiness	0.50		
914C3:						
Atlas	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
	Stickiness/slope	0.50	Low strength	0.50		
			Slope	0.50		
			Stickiness	0.50		
Grantfork	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		
			Slope	0.50		
993A:						
Cowden	Moderate		Poorly suited		Severe	
	Low strength	0.50	Ponding	1.00	Low strength	1.00
			Wetness	1.00		
			Low strength	0.50		
Piasa	Moderate		Poorly suited		Severe	
	Low strength	0.50	Ponding	1.00	Low strength	1.00
			Wetness	1.00		
			Low strength	0.50		
3076A:						
Otter	Severe		Poorly suited		Severe	
	Flooding	1.00	Ponding	1.00	Low strength	1.00
	Low strength	0.50	Flooding	1.00		
			Wetness	1.00		
			Low strength	0.50		

Table 12a.--Forest Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3107A:						
Sawmill	Severe		Poorly suited		Severe	
	Flooding	1.00	Ponding	1.00	Low strength	1.00
	Low strength	0.50	Flooding	1.00		
			Wetness	1.00		
			Low strength	0.50		
3304A:						
Landes	Severe		Poorly suited		Moderate	
	Flooding	1.00	Flooding	1.00	Low strength	0.50
3333A:						
Wakeland	Severe		Poorly suited		Severe	
	Flooding	1.00	Flooding	1.00	Low strength	1.00
	Low strength	0.50	Wetness	0.50		
			Low strength	0.50		
3428A:						
Coffeen	Severe		Poorly suited		Severe	
	Flooding	1.00	Flooding	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
			Wetness	0.50		
3451A:						
Lawson	Severe		Poorly suited		Severe	
	Flooding	1.00	Flooding	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
			Wetness	0.50		
9017A:						
Keomah	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		
9257A:						
Clarksdale	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		
9279B:						
Rozetta	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00

Table 12b.--Forest Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
6B2, 6C2:						
Fishhook	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.09	Slope/erodibility	0.39	Low strength	0.50
					Wetness	0.50
8D2, 8D3:						
Hickory	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.27	Slope/erodibility	1.00	Slope	1.00
					Low strength	0.50
8F, 8F2:						
Hickory	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.52	Slope/erodibility	1.00	Slope	1.00
					Low strength	0.50
8G:						
Hickory	Severe		Severe		Poorly suited	
	Slope/erodibility	0.94	Slope/erodibility	1.00	Slope	1.00
					Low strength	0.50
16A:						
Rushville	Slight		Slight		Poorly suited	
	Slope/erodibility	0.01	Slope/erodibility	0.06	Ponding	1.00
					Wetness	1.00
					Low strength	0.50
17A:						
Keomah	Slight		Slight		Moderately suited	
	Slope/erodibility	0.02	Slope/erodibility	0.11	Wetness	0.50
					Low strength	0.50
31A:						
Pierron	Slight		Slight		Poorly suited	
	Slope/erodibility	0.01	Slope/erodibility	0.06	Ponding	1.00
					Wetness	1.00
					Low strength	0.50
43A:						
Ipava	Slight		Slight		Moderately suited	
	Slope/erodibility	0.02	Slope/erodibility	0.11	Low strength	0.50
					Wetness	0.50
46A:						
Herrick	Slight		Slight		Moderately suited	
	Slope/erodibility	0.02	Slope/erodibility	0.11	Low strength	0.50
					Wetness	0.50
50A:						
Virden	Slight		Slight		Poorly suited	
	Slope/erodibility	0.01	Slope/erodibility	0.06	Ponding	1.00
					Wetness	1.00
					Low strength	0.50

Table 12b.--Forest Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
112A:						
Cowden	Slight		Slight		Poorly suited	
	Slope/erodibility	0.01	Slope/erodibility	0.06	Ponding	1.00
					Wetness	1.00
					Low strength	0.50
113A:						
Oconee	Slight		Slight		Moderately suited	
	Slope/erodibility	0.02	Slope/erodibility	0.11	Wetness	0.50
					Low strength	0.50
113B:						
Oconee	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.09	Slope/erodibility	0.39	Wetness	0.50
					Low strength	0.50
119B2:						
Elco	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.09	Slope/erodibility	0.39	Low strength	0.50
119C2, 119C3:						
Elco	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.18	Slope/erodibility	0.83	Low strength	0.50
					Slope	0.50
119D2, 119D3:						
Elco	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.34	Slope/erodibility	1.00	Slope	1.00
					Low strength	0.50
127B:						
Harrison	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.07	Slope/erodibility	0.39	Low strength	0.50
134C2:						
Camden	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.18	Slope/erodibility	0.83	Low strength	0.50
					Slope	0.50
250D:						
Velma	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.27	Slope/erodibility	1.00	Slope	1.00
					Low strength	0.50
257A:						
Clarksdale	Slight		Slight		Moderately suited	
	Slope/erodibility	0.02	Slope/erodibility	0.11	Wetness	0.50
					Low strength	0.50
257B:						
Clarksdale	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.09	Slope/erodibility	0.39	Wetness	0.50
					Low strength	0.50
259B, 259B2:						
Assumption	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.07	Slope/erodibility	0.39	Low strength	0.50

Table 12b.--Forest Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
259C2:						
Assumption----------	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.18	Slope/erodibility	0.83	Low strength	0.50
					Slope	0.50
279A:						
Rozetta-------------	Slight		Slight		Moderately suited	
	Slope/erodibility	0.02	Slope/erodibility	0.11	Low strength	0.50
279B:						
Rozetta-------------	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.09	Slope/erodibility	0.39	Low strength	0.50
279C2:						
Rozetta-------------	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.18	Slope/erodibility	0.83	Low strength	0.50
					Slope	0.50
280B:						
Fayette-------------	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.09	Slope/erodibility	0.39	Low strength	0.50
280C2:						
Fayette-------------	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.18	Slope/erodibility	0.83	Low strength	0.50
					Slope	0.50
470B:						
Keller--------------	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.07	Slope/erodibility	0.39	Low strength	0.50
					Wetness	0.50
477B:						
Winfield------------	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.09	Slope/erodibility	0.39	Low strength	0.50
477C2, 477C3:						
Winfield------------	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.18	Slope/erodibility	0.83	Low strength	0.50
					Slope	0.50
477D3:						
Winfield------------	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.34	Slope/erodibility	1.00	Slope	1.00
					Low strength	0.50
515B3:						
Bunkum--------------	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.09	Slope/erodibility	0.39	Low strength	0.50
					Wetness	0.50
515C3:						
Bunkum--------------	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.18	Slope/erodibility	0.83	Low strength	0.50
					Slope	0.50
					Wetness	0.50

Table 12b.--Forest Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
515D3:						
Bunkum	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.34	Slope/erodibility	1.00	Slope	1.00
					Low strength	0.50
					Wetness	0.50
517A:						
Marine	Slight		Slight		Moderately suited	
	Slope/erodibility	0.02	Slope/erodibility	0.11	Wetness	0.50
					Low strength	0.50
517B:						
Marine	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.09	Slope/erodibility	0.39	Wetness	0.50
					Low strength	0.50
536:						
Dumps	Not rated		Not rated		Not rated	
570D2:						
Martinsville	Moderate		Moderate		Poorly suited	
	Slope/erodibility	0.27	Slope/erodibility	0.88	Slope	1.00
582B:						
Homen	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.09	Slope/erodibility	0.39	Low strength	0.50
582C2:						
Homen	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.18	Slope/erodibility	0.83	Low strength	0.50
					Slope	0.50
587B:						
Terril	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.07	Slope/erodibility	0.39	Low strength	0.50
657A:						
Burksville	Slight		Slight		Poorly suited	
	Slope/erodibility	0.01	Slope/erodibility	0.06	Ponding	1.00
					Wetness	1.00
					Low strength	0.50
660C2:						
Coatsburg	Slight		Moderate		Poorly suited	
	Slope/erodibility	0.15	Slope/erodibility	0.83	Wetness	1.00
					Low strength	0.50
					Slope	0.50
705B:						
Buckhart	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.07	Slope/erodibility	0.39	Low strength	0.50
713G:						
Judyville	Severe		Severe		Poorly suited	
	Slope/erodibility	0.88	Slope/erodibility	1.00	Slope	1.00
					Low strength	0.50

Table 12b.--Forest Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
802B:						
Orthents	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.10	Slope/erodibility	0.44	Low strength	0.50
802E:						
Orthents	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.51	Slope/erodibility	1.00	Slope	1.00
					Low strength	0.50
830:						
Landfills	Not rated		Not rated		Not rated	
880B2:						
Coulterville	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.09	Slope/erodibility	0.39	Wetness	0.50
					Low strength	0.50
Darmstadt	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.09	Slope/erodibility	0.39	Wetness	0.50
					Low strength	0.50
882B:						
Oconee	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.09	Slope/erodibility	0.39	Wetness	0.50
					Low strength	0.50
Coulterville	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.09	Slope/erodibility	0.39	Wetness	0.50
					Low strength	0.50
Darmstadt	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.09	Slope/erodibility	0.39	Wetness	0.50
					Low strength	0.50
885A:						
Virden	Slight		Slight		Poorly suited	
	Slope/erodibility	0.01	Slope/erodibility	0.06	Ponding	1.00
					Wetness	1.00
					Low strength	0.50
Fosterburg	Slight		Slight		Poorly suited	
	Slope/erodibility	0.01	Slope/erodibility	0.06	Ponding	1.00
					Wetness	1.00
					Low strength	0.50
894A:						
Herrick	Slight		Slight		Moderately suited	
	Slope/erodibility	0.02	Slope/erodibility	0.11	Low strength	0.50
					Wetness	0.50
Biddle	Slight		Slight		Moderately suited	
	Slope/erodibility	0.02	Slope/erodibility	0.11	Low strength	0.50
					Wetness	0.50
Piasa	Slight		Slight		Poorly suited	
	Slope/erodibility	0.01	Slope/erodibility	0.06	Ponding	1.00
					Wetness	1.00
					Low strength	0.50

Table 12b.--Forest Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
897C2:						
Bunkum	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.18	Slope/erodibility	0.83	Low strength	0.50
					Slope	0.50
					Wetness	0.50
Atlas	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.15	Slope/erodibility	0.83	Wetness	0.50
					Low strength	0.50
					Slope	0.50
897C3:						
Bunkum	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.18	Slope/erodibility	0.83	Low strength	0.50
					Slope	0.50
					Wetness	0.50
Atlas	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.15	Slope/erodibility	0.83	Wetness	0.50
					Low strength	0.50
					Slope	0.50
					Stickiness	0.50
897D2:						
Bunkum	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.34	Slope/erodibility	1.00	Slope	1.00
					Low strength	0.50
					Wetness	0.50
Atlas	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.27	Slope/erodibility	1.00	Slope	1.00
					Wetness	0.50
					Low strength	0.50
897D3:						
Bunkum	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.34	Slope/erodibility	1.00	Slope	1.00
					Low strength	0.50
					Wetness	0.50
Atlas	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.27	Slope/erodibility	1.00	Slope	1.00
					Wetness	0.50
					Low strength	0.50
					Stickiness	0.50
914C3:						
Atlas	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.15	Slope/erodibility	0.83	Wetness	0.50
					Low strength	0.50
					Slope	0.50
					Stickiness	0.50
Grantfork	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.18	Slope/erodibility	0.83	Wetness	0.50
					Low strength	0.50
					Slope	0.50

Table 12b.--Forest Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
993A:						
Cowden--------------	Slight		Slight		Poorly suited	
	Slope/erodibility	0.01	Slope/erodibility	0.06	Ponding	1.00
					Wetness	1.00
					Low strength	0.50
Piasa---------------	Slight		Slight		Poorly suited	
	Slope/erodibility	0.01	Slope/erodibility	0.06	Ponding	1.00
					Wetness	1.00
					Low strength	0.50
3076A:						
Otter---------------	Slight		Slight		Poorly suited	
	Slope/erodibility	0.01	Slope/erodibility	0.06	Ponding	1.00
					Flooding	1.00
					Wetness	1.00
					Low strength	0.50
3107A:						
Sawmill-------------	Slight		Slight		Poorly suited	
	Slope/erodibility	0.01	Slope/erodibility	0.06	Ponding	1.00
					Flooding	1.00
					Wetness	1.00
					Low strength	0.50
3304A:						
Landes--------------	Slight		Slight		Poorly suited	
	Slope/erodibility	0.02	Slope/erodibility	0.06	Flooding	1.00
3333A:						
Wakeland------------	Slight		Slight		Poorly suited	
	Slope/erodibility	0.02	Slope/erodibility	0.11	Flooding	1.00
					Wetness	0.50
					Low strength	0.50
3428A:						
Coffeen-------------	Slight		Slight		Poorly suited	
	Slope/erodibility	0.02	Slope/erodibility	0.11	Flooding	1.00
					Low strength	0.50
					Wetness	0.50
3451A:						
Lawson--------------	Slight		Slight		Poorly suited	
	Slope/erodibility	0.02	Slope/erodibility	0.11	Flooding	1.00
					Low strength	0.50
					Wetness	0.50
9017A:						
Keomah--------------	Slight		Slight		Moderately suited	
	Slope/erodibility	0.02	Slope/erodibility	0.11	Wetness	0.50
					Low strength	0.50
9257A:						
Clarksdale----------	Slight		Slight		Moderately suited	
	Slope/erodibility	0.02	Slope/erodibility	0.11	Wetness	0.50
					Low strength	0.50

Table 12b.--Forest Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9279B:						
Rozetta-------------	Slight		Moderate		Moderately suited	
	Slope/erodibility	0.09	Slope/erodibility	0.39	Low strength	0.50

Table 12c.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
6B2, 6C2:						
Fishhook	Well suited		Well suited		Moderately suited	
					Low strength	0.50
8D2, 8D3:						
Hickory	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		
8F, 8F2:						
Hickory	Moderately suited		Unsuited		Moderately suited	
	Stickiness	0.50	Slope	1.00	Low strength	0.50
			Stickiness	0.50	Slope	0.50
8G:						
Hickory	Moderately suited		Unsuited		Poorly suited	
	Slope	0.50	Slope	1.00	Slope	1.00
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
16A:						
Rushville	Well suited		Well suited		Moderately suited	
					Low strength	0.50
17A:						
Keomah	Well suited		Well suited		Moderately suited	
					Low strength	0.50
31A:						
Pierron	Well suited		Well suited		Moderately suited	
					Low strength	0.50
43A:						
Ipava	Well suited		Well suited		Moderately suited	
					Low strength	0.50
46A:						
Herrick	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
50A:						
Virden	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
112A:						
Cowden	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
113A, 113B:						
Oconee	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
119B2:						
Elco	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50

Table 12c.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
119C2, 119C3, 119D2 119D3:						
Elco	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		
127B:						
Harrison	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
134C2:						
Camden	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Low strength	0.50
250D:						
Velma	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Low strength	0.50
257A:						
Clarksdale	Well suited		Well suited		Moderately suited	
					Low strength	0.50
257B:						
Clarksdale	Poorly suited		Poorly suited		Moderately suited	
	Stickiness	0.75	Stickiness	0.75	Low strength	0.50
259B:						
Assumption	Well suited		Well suited		Moderately suited	
					Low strength	0.50
259B2:						
Assumption	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
259C2:						
Assumption	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		
279A, 279B:						
Rozetta	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
279C2:						
Rozetta	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		
280B:						
Fayette	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
280C2:						
Fayette	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		
470B:						
Keller	Well suited		Well suited		Moderately suited	
					Low strength	0.50

Table 12c.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
477B:						
Winfield------------	Well suited		Well suited		Moderately suited	
					Low strength	0.50
477C2, 477C3, 477D3:						
Winfield------------	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Low strength	0.50
515B3:						
Bunkum--------------	Well suited		Well suited		Moderately suited	
					Low strength	0.50
515C3, 515D3:						
Bunkum--------------	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Low strength	0.50
517A, 517B:						
Marine--------------	Well suited		Well suited		Moderately suited	
					Low strength	0.50
536:						
Dumps---------------	Not rated		Not rated		Not rated	
570D2:						
Martinsville--------	Well suited		Moderately suited		Well suited	
			Slope	0.50		
582B:						
Homen---------------	Well suited		Well suited		Moderately suited	
					Low strength	0.50
582C2:						
Homen---------------	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Low strength	0.50
587B:						
Terril--------------	Well suited		Well suited		Moderately suited	
					Low strength	0.50
657A:						
Burksville----------	Well suited		Well suited		Moderately suited	
					Low strength	0.50
660C2:						
Coatsburg-----------	Poorly suited		Poorly suited		Moderately suited	
	Stickiness	0.75	Stickiness	0.75	Low strength	0.50
			Slope	0.50		
705B:						
Buckhart------------	Well suited		Well suited		Moderately suited	
					Low strength	0.50
713G:						
Judyville-----------	Moderately suited		Unsuited		Poorly suited	
	Slope	0.50	Slope	1.00	Slope	1.00
			Rock fragments	0.50	Low strength	0.50
802B:						
Orthents------------	Well suited		Well suited		Moderately suited	
					Low strength	0.50

Table 12c.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
802E:						
Orthents	Well suited		Poorly suited		Moderately suited	
			Slope	0.75	Low strength	0.50
					Slope	0.50
830:						
Landfills	Not rated		Not rated		Not rated	
880B2:						
Coulterville	Well suited		Well suited		Moderately suited	
					Low strength	0.50
Darmstadt	Well suited		Well suited		Moderately suited	
					Low strength	0.50
882B:						
Oconee	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
Coulterville	Well suited		Well suited		Moderately suited	
					Low strength	0.50
Darmstadt	Well suited		Well suited		Moderately suited	
					Low strength	0.50
885A:						
Virden	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
Fosterburg	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
894A:						
Herrick	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
Biddle	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
Piasa	Poorly suited		Poorly suited		Moderately suited	
	Stickiness	0.75	Stickiness	0.75	Low strength	0.50
897C2:						
Bunkum	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Low strength	0.50
Atlas	Poorly suited		Poorly suited		Moderately suited	
	Stickiness	0.75	Stickiness	0.75	Low strength	0.50
			Slope	0.50		
897C3:						
Bunkum	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Low strength	0.50
Atlas	Poorly suited		Poorly suited		Moderately suited	
	Stickiness	0.75	Stickiness	0.75	Low strength	0.50
			Slope	0.50	Stickiness	0.50
897D2:						
Bunkum	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Low strength	0.50

Table 12c.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
897D2:						
Atlas---------------	Poorly suited		Poorly suited		Moderately suited	
	Stickiness	0.75	Stickiness	0.75	Low strength	0.50
			Slope	0.50		
897D3:						
Bunkum--------------	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Low strength	0.50
Atlas---------------	Poorly suited		Poorly suited		Moderately suited	
	Stickiness	0.75	Stickiness	0.75	Low strength	0.50
			Slope	0.50	Stickiness	0.50
914C3:						
Atlas---------------	Poorly suited		Poorly suited		Moderately suited	
	Stickiness	0.75	Stickiness	0.75	Low strength	0.50
			Slope	0.50	Stickiness	0.50
Grantfork-----------	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Low strength	0.50
993A:						
Cowden--------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
Piasa---------------	Poorly suited		Poorly suited		Moderately suited	
	Stickiness	0.75	Stickiness	0.75	Low strength	0.50
3076A:						
Otter---------------	Well suited		Well suited		Moderately suited	
					Low strength	0.50
3107A:						
Sawmill-------------	Well suited		Well suited		Moderately suited	
					Low strength	0.50
3304A:						
Landes--------------	Well suited		Well suited		Well suited	
3333A:						
Wakeland------------	Well suited		Well suited		Moderately suited	
					Low strength	0.50
3428A:						
Coffeen-------------	Well suited		Well suited		Moderately suited	
					Low strength	0.50
3451A:						
Lawson--------------	Well suited		Well suited		Moderately suited	
					Low strength	0.50
9017A:						
Keomah--------------	Well suited		Well suited		Moderately suited	
					Low strength	0.50
9257A:						
Clarksdale----------	Well suited		Well suited		Moderately suited	
					Low strength	0.50

Table 12c.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9279B:						
Rozetta-------------	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50

Table 12d.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)		Potential for seedling mortality	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
6B2, 6C2:						
Fishhook	Well suited		Well suited		Low	
8D2, 8D3:						
Hickory	Well suited		Well suited		Low	
8F, 8F2:						
Hickory	Poorly suited		Poorly suited		Low	
	Slope	0.50	Slope	0.50		
8G:						
Hickory	Unsuited		Unsuited		Low	
	Slope	1.00	Slope	1.00		
16A:						
Rushville	Well suited		Well suited		High	
					Wetness	1.00
17A:						
Keomah	Well suited		Well suited			
					High	
31A:					Wetness	1.00
Pierron	Well suited		Well suited			
43A:						
Ipava	Well suited		Well suited		Low	
46A:						
Herrick	Well suited		Well suited		Low	
50A:						
Virden	Well suited		Well suited		High	
					Wetness	1.00
112A:						
Cowden	Well suited		Well suited		High	
					Wetness	1.00
113A, 113B:						
Oconee	Well suited		Well suited		High	
					Wetness	1.00
119B2, 119C2, 119C3, 119D2, 119D3:						
Elco	Well suited		Well suited		Low	
127B:						
Harrison	Well suited		Well suited		Low	
134C2:						
Camden	Well suited		Well suited		Low	
250D:						
Velma	Well suited		Well suited		Low	
257A:						
Clarksdale	Well suited		Well suited		High	
					Wetness	1.00

Table 12d.--Forestland Management--Continued

Map symbol and soil name	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)		Potential for seedling mortality	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
257B:						
Clarksdale	Poorly suited		Well suited		High	
	Stickiness	0.50			Wetness	1.00
259B, 259B2, 259C2:						
Assumption	Well suited		Well suited		Low	
279A, 279B, 279C2:						
Rozetta	Well suited		Well suited		Low	
280B, 280C2:						
Fayette	Well suited		Well suited		Low	
470B:						
Keller	Well suited		Well suited		Low	
477B:						
Winfield	Well suited		Well suited		Low	
477C2, 477C3, 477D3:						
Winfield	Well suited		Well suited		Low	
515B3, 515C3, 515D3:						
Bunkum	Well suited		Well suited		Low	
517A, 517B:						
Marine	Well suited		Well suited		High	
					Wetness	1.00
536:						
Dumps	Not rated		Not rated		Not rated	
570D2:						
Martinsville	Well suited		Well suited		Low	
582B, 582C2:						
Homen	Well suited		Well suited		Low	
587B:						
Terril	Well suited		Well suited		Low	
657A:						
Burksville	Well suited		Well suited		High	
					Wetness	1.00
660C2:						
Coatsburg	Poorly suited		Well suited		High	
	Stickiness	0.50			Wetness	1.00
705B:						
Buckhart	Well suited		Well suited		Low	
713G:						
Judyville	Unsuited		Unsuited		Low	
	Slope	1.00	Slope	1.00		
802B:						
Orthents	Well suited		Well suited		Low	

Table 12d.--Forestland Management--Continued

Map symbol and soil name	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)		Potential for seedling mortality	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
802E:						
Orthents	Poorly suited		Poorly suited		Low	
	Slope	0.50	Slope	0.50		
830:						
Landfills	Not rated		Not rated		Not rated	
880B2:						
Coulterville	Well suited		Well suited		High	
					Wetness	1.00
Darmstadt	Well suited		Well suited		High	
					Wetness	1.00
882B:						
Oconee	Well suited		Well suited		High	
					Wetness	1.00
Coulterville	Well suited		Well suited		High	
					Wetness	1.00
Darmstadt	Well suited		Well suited		High	
					Wetness	1.00
885A:						
Virden	Well suited		Well suited		High	
					Wetness	1.00
Fosterburg	Well suited		Well suited		High	
					Wetness	1.00
894A:						
Herrick	Well suited		Well suited		Low	
Biddle	Well suited		Well suited		Low	
Piasa	Poorly suited		Well suited		High	
	Stickiness	0.50			Wetness	1.00
897C2, 897C3, 897D2, 897D3:						
Bunkum	Well suited		Well suited		Low	
Atlas	Poorly suited		Well suited		High	
	Stickiness	0.50			Wetness	1.00
914C3:						
Atlas	Poorly suited		Well suited		High	
	Stickiness	0.50			Wetness	1.00
Grantfork	Well suited		Well suited		High	
					Wetness	1.00
993A:						
Cowden	Well suited		Well suited		High	
					Wetness	1.00
Piasa	Poorly suited		Well suited		High	
	Stickiness	0.50			Wetness	1.00
3076A:						
Otter	Well suited		Well suited		High	
					Wetness	1.00

Table 12d.--Forestland Management--Continued

Map symbol and soil name	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)		Potential for seedling mortality	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3107A:						
Sawmill	Well suited		Well suited		High	
					Wetness	1.00
3304A:						
Landes	Well suited		Well suited		Low	
3333A:						
Wakeland	Well suited		Well suited		High	
					Wetness	1.00
3428A:						
Coffeen	Well suited		Well suited		Low	
3451A:						
Lawson	Well suited		Well suited		Low	
9017A:						
Keomah	Well suited		Well suited		High	
					Wetness	1.00
9257A:						
Clarksdale	Well suited		Well suited		High	
					Wetness	1.00
9279B:						
Rozetta	Well suited		Well suited		Low	

Table 13a.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
6B2:						
Fishhook------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
					Slope	0.28
6C2:						
Fishhook------------	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Slope	1.00
	Restricted permeability	0.43	Restricted permeability	0.43	Depth to saturated zone	0.98
					Restricted permeability	0.43
8D2, 8D3:						
Hickory-------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
8F, 8F2, 8G:						
Hickory-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
16A:						
Rushville-----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
17A:						
Keomah--------------	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Restricted permeability	0.96	Depth to saturated zone	1.00
	Restricted permeability	0.96	Depth to saturated zone	0.94	Restricted permeability	0.96
31A:						
Pierron-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00	Restricted permeability	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
43A:						
Ipava---------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21

Table 13a.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
46A:						
Herrick-------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
50A:						
Virden--------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
112A:						
Cowden--------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
113A:						
Oconee--------------	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Restricted permeability	0.96	Depth to saturated zone	1.00
	Restricted permeability	0.96	Depth to saturated zone	0.94	Restricted permeability	0.96
113B:						
Oconee--------------	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Restricted permeability	0.96	Depth to saturated zone	1.00
	Restricted permeability	0.96	Depth to saturated zone	0.94	Restricted permeability	0.96
					Slope	0.28
119B2:						
Elco----------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
					Slope	0.28
119C2:						
Elco----------------	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.43	Restricted permeability	0.43	Slope	1.00
					Restricted permeability	0.43
119D2, 119D3:						
Elco----------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
127B:						
Harrison------------	Not limited		Not limited		Somewhat limited	
					Slope	0.28

Table 13a.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
134C2:						
Camden	Not limited		Not limited		Very limited	
					Slope	1.00
250D:						
Velma	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
257A:						
Clarksdale	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
257B:						
Clarksdale	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.28
					Restricted permeability	0.21
259B, 259B2:						
Assumption	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
					Slope	0.28
259C2:						
Assumption	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.43	Restricted permeability	0.43	Slope	1.00
					Restricted permeability	0.43
279A:						
Rozetta	Not limited		Not limited		Not limited	
279B:						
Rozetta	Not limited		Not limited		Somewhat limited	
					Slope	0.28
279C2:						
Rozetta	Not limited		Not limited		Very limited	
					Slope	1.00
280B:						
Fayette	Not limited		Not limited		Somewhat limited	
					Slope	0.28
280C2:						
Fayette	Not limited		Not limited		Very limited	
					Slope	1.00
470B:						
Keller	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Restricted permeability	0.50	Restricted permeability	0.50	Restricted permeability	0.50
					Slope	0.28

Table 13a.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
477B:						
Winfield------------	Not limited		Not limited		Somewhat limited	
					Slope	0.28
477C2, 477C3:						
Winfield------------	Not limited		Not limited		Very limited	
					Slope	1.00
477D3:						
Winfield------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
515B3:						
Bunkum--------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.28
					Restricted permeability	0.21
515C3:						
Bunkum--------------	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Slope	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Depth to saturated zone	0.98
					Restricted permeability	0.21
515D3:						
Bunkum--------------	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.98	Slope	0.96	Slope	1.00
	Slope	0.96	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
517A:						
Marine--------------	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Restricted permeability	0.96	Depth to saturated zone	1.00
	Restricted permeability	0.96	Depth to saturated zone	0.94	Restricted permeability	0.96
517B:						
Marine--------------	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Restricted permeability	0.96	Depth to saturated zone	1.00
	Restricted permeability	0.96	Depth to saturated zone	0.94	Restricted permeability	0.96
					Slope	0.28
536:						
Dumps---------------	Not rated		Not rated		Not rated	
570D2:						
Martinsville--------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00

Table 13a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
582B:						
Homen---------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.28
					Restricted permeability	0.21
582C2:						
Homen---------------	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
					Restricted permeability	0.21
587B:						
Terril--------------	Not limited		Not limited		Somewhat limited	
					Slope	0.28
657A:						
Burksville----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to	1.00	Ponding	1.00
	Restricted permeability	0.96	Depth to		Restricted permeability	0.96
			Restricted permeability	0.96		
660C2:						
Coatsburg-----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
					Slope	1.00
705B:						
Buckhart------------	Not limited		Not limited		Somewhat limited	
					Slope	0.28
713G:						
Judyville-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Depth to bedrock	0.42
					Gravel content	0.03
					Content of large stones	0.01
802B:						
Orthents------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.50
					Restricted permeability	0.21
802E:						
Orthents------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
830:						
Landfills-----------	Not rated		Not rated		Not rated	

Table 13a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
880B2:						
Coulterville--------	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Restricted permeability	0.96	Depth to saturated zone	1.00
	Restricted permeability	0.96	Depth to saturated zone	0.94	Restricted permeability	0.96
					Slope	0.28
Darmstadt-----------	Very limited		Very limited		Very limited	
	Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
					Slope	0.28
882B:						
Oconee--------------	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Restricted permeability	0.96	Depth to saturated zone	1.00
	Restricted permeability	0.96	Depth to saturated zone	0.94	Restricted permeability	0.96
					Slope	0.28
Coulterville--------	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Restricted permeability	0.96	Depth to saturated zone	1.00
	Restricted permeability	0.96	Depth to saturated zone	0.94	Restricted permeability	0.96
					Slope	0.28
Darmstadt-----------	Very limited		Very limited		Very limited	
	Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
					Slope	0.28
885A:						
Virden--------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
Fosterburg----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
894A:						
Herrick-------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21

Table 13a.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
894A:						
Biddle	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Restricted permeability	0.96	Depth to saturated zone	0.98
	Restricted permeability	0.96	Depth to saturated zone	0.75	Restricted permeability	0.96
Piasa	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Sodium content	1.00	Depth to saturated zone	1.00	Sodium content	1.00
	Ponding	1.00	Sodium content	1.00	Ponding	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
897C2, 897C3:						
Bunkum	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Slope	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Depth to saturated zone	0.98
					Restricted permeability	0.21
Atlas	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.94	Slope	1.00
					Depth to saturated zone	
897D2, 897D3:						
Bunkum	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.98	Slope	0.96	Slope	1.00
	Slope	0.96	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
Atlas	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Slope	1.00
	Depth to saturated zone	1.00	Slope	0.96	Restricted permeability	1.00
	Slope	0.96	Depth to saturated zone	0.94	Depth to saturated zone	1.00
914C3:						
Atlas	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.94	Slope	1.00
					Depth to saturated zone	1.00
Grantfork	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Restricted permeability	0.96	Slope	1.00
	Restricted permeability	0.96	Depth to saturated zone	0.94	Depth to saturated zone	1.00
					Restricted permeability	0.96

Table 13a.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
993A:						
Cowden	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
Piasa	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Sodium content	1.00	Depth to saturated zone	1.00	Sodium content	1.00
	Ponding	1.00	Sodium content	1.00	Ponding	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
3076A:						
Otter	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Flooding	0.40	Ponding	1.00
3107A:						
Sawmill	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Flooding	0.40	Ponding	1.00
3304A:						
Landes	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
					Gravel content	0.22
3333A:						
Wakeland	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Depth to saturated zone	0.94	Flooding	1.00
	Depth to saturated zone	1.00	Flooding	0.40	Depth to saturated zone	1.00
3428A:						
Coffeen	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Depth to saturated zone	0.75	Flooding	1.00
	Depth to saturated zone	0.98	Flooding	0.40	Depth to saturated zone	0.98
3451A:						
Lawson	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Depth to saturated zone	0.75	Flooding	1.00
	Depth to saturated zone	0.98	Flooding	0.40	Depth to saturated zone	0.98
9017A:						
Keomah	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Restricted permeability	0.96	Depth to saturated zone	1.00
	Restricted permeability	0.96	Depth to saturated zone	0.94	Restricted permeability	0.96

Table 13a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9257A:						
Clarksdale----------	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
9279B:						
Rozetta-------------	Not limited		Not limited		Somewhat limited	
					Slope	0.28

Table 13b.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
6B2, 6C2:						
Fishhook------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
8D2, 8D3:						
Hickory-------------	Not limited		Not limited		Somewhat limited	
					Slope	0.96
8F, 8F2:						
Hickory-------------	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.04	Slope	1.00
8G:						
Hickory-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
16A:						
Rushville-----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
17A:						
Keomah--------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
31A:						
Pierron-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
43A:						
Ipava---------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
46A:						
Herrick-------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
50A:						
Virden--------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00

Table 13b.--Recreation--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
112A:						
Cowden	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
113A, 113B:						
Oconee	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
119B2, 119C2, 119C3:						
Elco	Not limited		Not limited		Not limited	
119D2, 119D3:						
Elco	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
127B:						
Harrison	Not limited		Not limited		Not limited	
134C2:						
Camden	Not limited		Not limited		Not limited	
250D:						
Velma	Not limited		Not limited		Somewhat limited	
					Slope	0.96
257A, 257B:						
Clarksdale	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
259B, 259B2, 259C2:						
Assumption	Not limited		Not limited		Not limited	
279A, 279B, 279C2:						
Rozetta	Not limited		Not limited		Not limited	
280B, 280C2:						
Fayette	Not limited		Not limited		Not limited	
470B:						
Keller	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
477B, 477C2, 477C3:						
Winfield	Not limited		Not limited		Not limited	
477D3:						
Winfield	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
515B3, 515C3:						
Bunkum	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75

Table 13b.--Recreation--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
515D3:						
Bunkum	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
517A, 517B:						
Marine	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
536:						
Dumps	Not rated		Not rated		Not rated	
570D2:						
Martinsville	Not limited		Not limited		Somewhat limited	
					Slope	0.96
582B, 582C2:						
Homen	Not limited		Not limited		Not limited	
587B:						
Terril	Not limited		Not limited		Not limited	
657A:						
Burksville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
660C2:						
Coatsburg	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
705B:						
Buckhart	Not limited		Not limited		Not limited	
713G:						
Judyville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Droughty	1.00
					Depth to bedrock	0.42
					Content of large stones	0.01
802B:						
Orthents	Not limited		Not limited		Not limited	
802E:						
Orthents	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.68				
830:						
Landfills	Not rated		Not rated		Not rated	

Table 13b.--Recreation--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
880B2:						
Coulterville	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
Darmstadt	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Sodium content	1.00
					Depth to saturated zone	0.94
882B:						
Oconee	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
Coulterville	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
Darmstadt	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Sodium content	1.00
					Depth to saturated zone	0.94
885A:						
Virden	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
Fosterburg	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
894A:						
Herrick	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
Biddle	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
Piasa	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
					Sodium content	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
897C2, 897C3:						
Bunkum	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
Atlas	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94

Table 13b.--Recreation--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
897D2, 897D3:						
Bunkum	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
Atlas	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Slope	0.96
					Depth to saturated zone	0.94
914C3:						
Atlas	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
Grantfork	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
993A:						
Cowden	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
Piasa	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Sodium content	1.00
					Depth to saturated zone	1.00
3076A:						
Otter	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
3107A:						
Sawmill	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
3304A:						
Landes	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
3333A:						
Wakeland	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	0.94

Table 13b.--Recreation--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
3428A:						
Coffeen	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	0.75
3451A:						
Lawson	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	0.75
9017A:						
Keomah	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
9257A:						
Clarksdale	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
9279B:						
Rozetta	Not limited		Not limited		Not limited	

Table 14.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
6B2, 6C2: Fishhook	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
8D2, 8D3: Hickory	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
8F, 8F2: Hickory	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
8G: Hickory	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
16A: Rushville	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
17A: Keomah	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
31A: Pierron	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
43A: Ipava	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
46A: Herrick	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
50A: Virden	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
112A: Cowden	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
113A: Oconee	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
113B: Oconee	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
119B2: Elco	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
119C2, 119C3: Elco	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
119D2, 119D3: Elco	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

Table 14.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
127B: Harrison	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
134C2: Camden	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
250D: Velma	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
257A: Clarksdale	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
257B: Clarksdale	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
259B, 259B2: Assumption	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
259C2: Assumption	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
279A, 279B: Rozetta	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
279C2: Rozetta	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
280B: Fayette	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
280C2: Fayette	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
470B: Keller	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
477B: Winfield	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
477C2, 477C3: Winfield	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
477D3: Winfield	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

Table 14.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
515B3, 515C3:										
Bunkum	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
515D3:										
Bunkum	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
517A:										
Marine	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
517B:										
Marine	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
536:										
Dumps.										
570D2:										
Martinsville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
582B:										
Homen	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
582C2:										
Homen	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
587B:										
Terril	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
657A:										
Burksville	Fair	Fair	Poor	Fair	Fair	Good	Good	Fair	Fair	Good.
660C2:										
Coatsburg	Fair	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
705B:										
Buckhart	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
713G:										
Judyville	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
802B, 802E:										
Orthents.										
830:										
Landfills.										
880B2:										
Coulterville	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Darmstadt	Fair	Good	Very poor.	Good	Good	Poor	Very poor.	Fair	Fair	Very poor.

Table 14.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
882B:										
Oconee	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Coulterville	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Darmstadt	Fair	Good	Very poor.	Good	Good	Poor	Very poor.	Fair	Fair	Very poor.
885A:										
Virden	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Fosterburg	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
894A:										
Herrick	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Biddle	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Piasa	Poor	Fair	Very poor.	Fair	Fair	Good	Good	Poor	Fair	Good.
897C2, 897C3:										
Bunkum	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Atlas	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
897D2, 897D3:										
Bunkum	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Atlas	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
914C3:										
Atlas	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Grantfork	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
993A:										
Cowden	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Piasa	Poor	Fair	Very poor.	Fair	Fair	Good	Good	Poor	Fair	Good.
3076A:										
Otter	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
3107A:										
Sawmill	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
3304A:										
Landes	Poor	Fair	Fair	Good	Good	Poor	Very poor.	Fair	Good	Very poor.

Table 14.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hardwood trees	Conif-erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
3333A:										
Wakeland	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
3428A:										
Coffeen	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
3451A:										
Lawson	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
9017A:										
Keomah	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
9257A:										
Clarksdale	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
9279B:										
Rozetta	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

Table 15a.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
6B2:						
Fishhook	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.50	Shrink-swell	1.00	Shrink-swell	0.50
6C2:						
Fishhook	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.50	Shrink-swell	1.00	Slope	0.97
					Shrink-swell	0.50
8D2, 8D3:						
Hickory	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
8F, 8F2, 8G:						
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
16A:						
Rushville	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00			Shrink-swell	1.00
17A:						
Keomah	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	1.00			Depth to saturated zone	1.00
31A:						
Pierron	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
43A:						
Ipava	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.98	Shrink-swell	0.50	Depth to saturated zone	0.98
46A:						
Herrick	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.98	Shrink-swell	1.00	Depth to saturated zone	0.98

Table 15a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
50A:						
Virden----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
112A:						
Cowden----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
113A, 113B:						
Oconee----------	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00
119B2:						
Elco------------	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	1.00	Shrink-swell	0.50
			Depth to saturated zone	0.99		
119C2, 119C3:						
Elco------------	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	1.00	Slope	0.97
			Depth to saturated zone	0.99	Shrink-swell	0.50
119D2, 119D3:						
Elco------------	Somewhat limited		Very limited		Very limited	
	Slope	0.96	Shrink-swell	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Slope	0.96		
127B:						
Harrison--------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Shrink-swell	0.50		
134C2:						
Camden----------	Somewhat limited		Not limited		Somewhat limited	
	Shrink-swell	0.50			Slope	0.97
					Shrink-swell	0.50
250D:						
Velma-----------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
257A:						
Clarksdale------	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00

Table 15a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
257B:						
Clarksdale------	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	1.00	Shrink-swell	0.50	Depth to saturated zone	1.00
259B, 259B2:						
Assumption------	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	1.00	Shrink-swell	0.50
			Depth to saturated zone	0.99		
259C2:						
Assumption------	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
			Depth to saturated zone	0.99	Slope	0.97
279A, 279B:						
Rozetta---------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
			Depth to saturated zone	0.15		
279C2:						
Rozetta---------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.97
			Depth to saturated zone	0.15	Shrink-swell	0.50
280B:						
Fayette---------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
280C2:						
Fayette---------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.97
					Shrink-swell	0.50
470B:						
Keller----------	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.50	Shrink-swell	1.00	Shrink-swell	0.50
477B:						
Winfield--------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Shrink-swell	0.50		
477C2, 477C3:						
Winfield--------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Slope	0.97
			Shrink-swell	0.50	Shrink-swell	0.50

Table 15a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
477D3:						
Winfield--------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Depth to saturated zone	0.99	Slope	1.00
	Shrink-swell	0.50	Slope	0.96	Shrink-swell	0.50
			Shrink-swell	0.50		
515B3:						
Bunkum----------	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
515C3:						
Bunkum----------	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.97
					Shrink-swell	0.50
515D3:						
Bunkum----------	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.96	Slope	0.96	Depth to saturated zone	0.98
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
517A:						
Marine----------	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	1.00	Shrink-swell	0.50	Depth to saturated zone	1.00
517B:						
Marine----------	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	1.00	Shrink-swell	0.50	Depth to saturated zone	1.00
536:						
Dumps-----------	Not rated		Not rated		Not rated	
570D2:						
Martinsville----	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
582B:						
Homen-----------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Shrink-swell	0.50		
582C2:						
Homen-----------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Slope	0.97
			Shrink-swell	0.50	Shrink-swell	0.50

Table 15a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
587B:						
Terril----------	Not limited		Not limited		Not limited	
657A:						
Burksville------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
660C2:						
Coatsburg-------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
					Slope	0.97
705B:						
Buckhart--------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Shrink-swell	0.50		
713G:						
Judyville-------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to hard bedrock	0.42	Depth to hard bedrock	1.00	Depth to hard bedrock	0.42
802B:						
Orthents--------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
802E:						
Orthents--------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
830:						
Landfills-------	Not rated		Not rated		Not rated	
880B2:						
Coulterville----	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Darmstadt-------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
882B:						
Oconee----------	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00

Table 15a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
882B:						
Coulterville----	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Darmstadt-------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
885A:						
Virden----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
Fosterburg------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
894A:						
Herrick---------	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.98	Shrink-swell	1.00	Depth to saturated zone	0.98
Biddle----------	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.98	Shrink-swell	1.00	Depth to saturated zone	0.98
Piasa-----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
897C2, 897C3:						
Bunkum----------	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.97
					Shrink-swell	0.50
Atlas-----------	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00
					Slope	0.97
897D2, 897D3:						
Bunkum----------	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.96	Slope	0.96	Depth to saturated zone	0.98
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 15a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
897D2, 897D3:						
Atlas	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Slope	1.00
	Depth to saturated zone	1.00	Shrink-swell	1.00	Shrink-swell	1.00
	Slope	0.96	Slope	0.96	Depth to saturated zone	1.00
914C3:						
Atlas	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00
					Slope	0.97
Grantfork	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Slope	0.97
993A:						
Cowden	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
Piasa	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
3076A:						
Otter	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
3107A:						
Sawmill	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
3304A:						
Landes	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
3333A:						
Wakeland	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 15a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
3428A:						
Coffeen	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
3451A:						
Lawson	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
			Shrink-swell	0.50		
9017A:						
Keomah	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00
9257A:						
Clarksdale	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00
9279B:						
Rozetta	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
			Depth to saturated zone	0.15		

Table 15b.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
6B2, 6C2:						
Fishhook-----------	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.75				
	Shrink-swell	0.50				
8D2, 8D3:						
Hickory------------	Very limited		Somewhat limited		Somewhat limited	
	Low strength	1.00	Slope	0.96	Slope	0.96
	Slope	0.96	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				
8F, 8F2, 8G:						
Hickory------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				
16A:						
Rushville----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.50		
	Low strength	1.00				
	Shrink-swell	1.00				
17A:						
Keomah-------------	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00				
	Shrink-swell	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.94				
31A:						
Pierron------------	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00				
	Shrink-swell	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Cutbanks cave	0.50		
	Ponding	1.00				
43A:						
Ipava--------------	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00				
	Shrink-swell	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.75				

Table 15b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
46A:						
Herrick	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00				
	Depth to saturated zone	0.75				
50A:						
Virden	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	1.00				
112A:						
Cowden	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	1.00				
113A, 113B:						
Oconee	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00				
	Depth to saturated zone	0.94				
119B2, 119C2, 119C3:						
Elco	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.99		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
119D2, 119D3:						
Elco	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	0.99	Slope	0.96
	Low strength	1.00	Slope	0.96		
	Slope	0.96	Cutbanks cave	0.10		
	Shrink-swell	0.50				
127B:						
Harrison	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.99		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
134C2:						
Camden	Very limited		Very limited		Not limited	
	Frost action	1.00	Cutbanks cave	1.00		
	Low strength	1.00				
	Shrink-swell	0.50				

Table 15b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
250D:						
Velma	Very limited		Somewhat limited		Somewhat limited	
	Low strength	1.00	Slope	0.96	Slope	0.96
	Slope	0.96	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				
257A, 257B:						
Clarksdale	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00				
	Depth to saturated zone	0.94				
259B, 259B2:						
Assumption	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.99		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
259C2:						
Assumption	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.99		
	Low strenght	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00				
279A:						
Rozetta	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.15		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
279B, 279C2:						
Rozetta	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.15		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
280B, 280C2:						
Fayette	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
470B:						
Keller	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.75				
	Shrink-swell	0.50				
477B, 477C2, 477C3:						
Winfield	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.99		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				

Table 15b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
477D3:						
Winfield------------	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	0.99	Slope	0.96
	Low strength	1.00	Slope	0.96		
	Slope	0.96	Cutbanks cave	0.10		
	Shrink-swell	0.50				
515B3, 515C3:						
Bunkum--------------	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.75				
	Shrink-swell	0.50				
515D3:						
Bunkum--------------	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Slope	0.96
	Low strength	1.00	Slope	0.96	Depth to saturated zone	0.75
	Slope	0.96	Cutbanks cave	0.10		
	Depth to saturated zone	0.75				
	Shrink-swell	0.50				
517A, 517B:						
Marine--------------	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength					
	Shrink-swell	1.00	Cutbanks cave	0.50		
	Depth to saturated zone	0.94				
536:						
Dumps---------------	Not rated		Not rated		Not rated	
570D2:						
Martinsville--------	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.96	Cutbanks cave	1.00	Slope	0.96
	Shrink-swell	0.50	Slope	0.96		
	Frost action	0.50				
582B, 582C2:						
Homen---------------	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.99		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
587B:						
Terril--------------	Very limited		Somewhat limited		Not limited	
	Low strength	1.00	Cutbanks cave	0.10		
	Frost action	0.50				
657A:						
Burksville----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				

Table 15b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
660C2:						
Coatsburg-----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00	Too clayey	0.02		
	Shrink-swell	1.00				
705B:						
Buckhart------------	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.99		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
713G:						
Judyville-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
	Depth to hard bedrock	0.42	Slope	1.00	Droughty	1.00
			Cutbanks cave	0.10	Depth to bedrock	0.42
					Content of large stones	0.01
802B:						
Orthents------------	Very limited		Somewhat limited		Not limited	
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				
802E:						
Orthents------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				
830:						
Landfills-----------	Not rated		Not rated		Not rated	
880B2:						
Coulterville--------	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.94				
	Shrink-swell	0.50				
Darmstadt-----------	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Sodium content	1.00
	Low strength	1.00	Cutbanks cave	0.10	Depth to saturated zone	0.94
	Depth to saturated zone	0.94				
	Shrink-swell	0.50				
882B:						
Oconee--------------	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00				
	Depth to saturated zone	0.94				

Table 15b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
882B:						
Coulterville	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.94				
	Shrink-swell	0.50				
Darmstadt	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Sodium content	1.00
	Low strength	1.00	Cutbanks cave	0.10	Depth to saturated zone	0.94
	Depth to saturated zone	0.94				
	Shrink-swell	0.50				
885A:						
Virden	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	1.00				
Fosterburg	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	1.00				
894A:						
Herrick	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00				
	Depth to saturated zone	0.75				
Biddle	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00				
	Depth to saturated zone	0.75				
Piasa	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Sodium content	1.00
	Frost action	1.00	Cutbanks cave	0.10	Depth to saturated zone	1.00
	Low strength	1.00				
	Shrink-swell	1.00				

Table 15b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
897C2, 897C3:						
Bunkum	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.75				
	Shrink-swell	0.50				
Atlas	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00	Too clayey	0.01		
	Depth to saturated zone	0.94				
897D2, 897D3:						
Bunkum	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Slope	0.96
	Low strength	1.00	Slope	0.96	Depth to saturated zone	0.75
	Slope	0.96	Cutbanks cave	0.10		
	Depth to saturated zone	0.75				
	Shrink-swell	0.50				
Atlas	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Slope	0.96
	Low strength	1.00	Slope	0.96	Depth to saturated zone	0.94
	Shrink-swell	1.00	Cutbanks cave	0.10		
	Slope	0.96	Too clayey	0.01		
	Depth to saturated zone	0.94				
914C3:						
Atlas	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00	Too clayey	0.02		
	Depth to saturated zone	0.94				
Grantfork	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.94	Too clayey	0.02		
993A:						
Cowden	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	1.00				

Table 15b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
993A:						
Piasa	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Sodium content	1.00
	Frost action	1.00	Cutbanks cave	0.10	Depth to saturated zone	1.00
	Low strength	1.00				
	Shrink-swell	1.00				
3076A:						
Otter	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
	Flooding	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
3107A:						
Sawmill	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
	Flooding	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
3304A:						
Landes	Very limited		Very limited		Very limited	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
	Frost action	0.50	Flooding	0.80		
3333A:						
Wakeland	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	1.00	Flooding	0.80	Depth to saturated zone	0.94
	Depth to saturated zone	0.94	Cutbanks cave	0.10		
3428A:						
Coffeen	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	1.00	Flooding	0.80	Depth to saturated zone	0.75
	Depth to saturated zone	0.75	Cutbanks cave	0.10		
3451A:						
Lawson	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
	looding	1.00	Flooding	0.80	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.75				
9017A:						
Keomah	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00				
	Depth to saturated zone	0.94				

Table 15b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
9257A:						
Clarksdale----------	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00				
	Depth to saturated zone	0.94				
9279B:						
Rozetta-------------	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.15		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrinl-swell	0.50				

Table 16a.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
6B2:				
Fishhook--------	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
	Restricted permeability	1.00	Slope	0.18
6C2:				
Fishhook--------	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	0.53
8D2, 8D3:				
Hickory---------	Somewhat limited		Very limited	
	Slope	0.96	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
8F, 8F2, 8G:				
Hickory---------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
16A:				
Rushville-------	Very limited		Very limited	
	Restricted permeability	1.00	Ponding	1.00
	Ponding	1.00		
	Depth to saturated zone	1.00		
17A:				
Keomah----------	Very limited		Somewhat limited	
	Restricted permeability	1.00	Seepage	0.53
	Depth to saturated zone	1.00		
31A:				
Pierron---------	Very limited		Very limited	
	Restricted permeability	1.00	Ponding	1.00
	Depth to saturated zone	1.00		
	Ponding	1.00		

Table 16a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
43A:				
Ipava	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
	Restricted permeability	1.00		
46A:				
Herrick	Very limited		Not limited	
	Depth to saturated zone	1.00		
	Restricted permeability	1.00		
50A:				
Virden	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00		
	Restricted permeability	1.00		
112A:				
Cowden	Very limited		Very limited	
	Restricted permeability	1.00	Ponding	1.00
	Ponding	1.00		
	Depth to saturated zone	1.00		
113A:				
Oconee	Very limited		Not limited	
	Restricted permeability	1.00		
	Depth to saturated zone	1.00		
113B:				
Oconee	Very limited		Somewhat limited	
	Restricted permeability	1.00	Slope	0.18
	Depth to saturated zone	1.00		
119B2:				
Elco	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
			Slope	0.18
	Restricted permeability	1.00		
119C2, 119C3:				
Elco	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
			Seepage	0.53
	Restricted permeability	1.00		

Table 16a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
119D2, 119D3:				
Elco	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	0.53
	Slope	0.96		
127B:				
Harrison	Very limited		Somewhat limited	
	Restricted permeability	1.00	Seepage	0.53
	Depth to saturated zone	1.00	Slope	0.18
134C2:				
Camden	Somewhat limited		Very limited	
	Restricted permeability	0.46	Seepage	1.00
			Slope	1.00
250D:				
Velma	Somewhat limited		Very limited	
	Slope	0.96	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
257A:				
Clarksdale	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
	Restricted permeability	1.00		
257B:				
Clarksdale	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
	Restricted permeability	1.00	Slope	0.18
259B, 259B2:				
Assumption	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
	Restricted permeability	1.00	Slope	0.18
259C2:				
Assumption	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	0.53
279A:				
Rozetta	Somewhat limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53
	Depth to saturated zone	0.40		

Table 16a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
279B:				
Rozetta----------	Somewhat limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.18
	Depth to saturated zone	0.40		
279C2:				
Rozetta----------	Somewhat limited		Very limited	
	Restricted permeability	0.46	Slope	1.00
			Seepage	0.53
	Depth to saturated zone	0.40		
280B:				
Fayette----------	Somewhat limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.18
280C2:				
Fayette----------	Somewhat limited		Very limited	
	Restricted permeability	0.46	Slope	1.00
			Seepage	0.53
470B:				
Keller-----------	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
			Slope	0.18
	Restricted permeability	1.00		
477B:				
Winfield---------	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
			Slope	0.18
	Restricted permeability	0.46		
477C2, 477C3:				
Winfield---------	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
			Seepage	0.53
	Restricted permeability	0.46		
477D3:				
Winfield---------	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
			Seepage	0.53
	Slope	0.96		
	Restricted permeability	0.46		
515B3:				
Bunkum-----------	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Slope	0.18
	Restricted permeability	1.00		

Table 16a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
515C3:				
Bunkum----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
	Restricted permeability	1.00		
515D3:				
Bunkum----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
	Restricted permeability	1.00		
	Slope	0.96		
517A:				
Marine----------	Very limited		Somewhat limited	
	Restricted permeability	1.00	Seepage	0.53
	Depth to saturated zone	1.00		
517B:				
Marine----------	Very limited		Somewhat limited	
	Restricted permeability	1.00	Seepage	0.53
			Slope	0.18
	Depth to saturated zone	1.00		
536:				
Dumps-----------	Not rated		Not rated	
570D2:				
Martinsville----	Somewhat limited		Very limited	
	Slope	0.96	Slope	1.00
	Restricted permeability	0.46	Seepage	1.00
582B:				
Homen-----------	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
			Slope	0.18
	Restricted permeability	1.00		
582C2:				
Homen-----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
	Restricted permeability	1.00		
587B:				
Terril----------	Somewhat limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.18

Table 16a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
657A:				
Burksville------	Very limited		Very limited	
	Restricted permeability	1.00	Ponding	1.00
	Ponding	1.00		
	Depth to saturated zone	1.00		
660C2:				
Coatsburg-------	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Depth to saturated zone	1.00		
705B:				
Buckhart--------	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
			Slope	0.18
	Restricted permeability	0.46		
713G:				
Judyville-------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Slope	1.00		
	Poor filtering capacity	1.00	Slope	1.00
			Seepage	1.00
	Restricted permeability	1.00		
802B:				
Orthents--------	Very limited		Somewhat limited	
	Restricted permeability	1.00	Slope	0.32
802E:				
Orthents--------	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Slope	1.00		
830:				
Landfills-------	Not rated		Not rated	
880B2:				
Coulterville----	Very limited		Somewhat limited	
	Restricted permeability	1.00	Slope	0.18
	Depth to saturated zone	1.00		
Darmstadt-------	Very limited		Somewhat limited	
	Restricted permeability	1.00	Slope	0.18
	Depth to saturated zone	1.00		

Table 16a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
882B:				
Oconee----------	Very limited		Somewhat limited	
	Restricted permeability	1.00	Slope	0.18
	Depth to saturated zone	1.00		
Coulterville----	Very limited		Somewhat limited	
	Restricted permeability	1.00	Slope	0.18
	Depth to saturated zone	1.00		
Darmstadt-------	Very limited		Somewhat limited	
	Restricted permeability	1.00	Slope	0.18
	Depth to saturated zone	1.00		
885A:				
Virden----------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00		
	Restricted permeability	1.00		
Fosterburg------	Very limited		Very limited	
	Restricted permeability	1.00	Ponding	1.00
	Ponding	1.00		
	Depth to saturated zone	1.00		
894A:				
Herrick---------	Very limited		Not limited	
	Depth to saturated zone	1.00		
	Restricted permeability	1.00		
Biddle----------	Very limited		Not limited	
	Restricted permeability	1.00		
	Depth to saturated zone	1.00		
Piasa-----------	Very limited		Very limited	
	Restricted permeability	1.00	Ponding	1.00
	Ponding	1.00		
	Depth to saturated zone	1.00		
897C2, 897C3:				
Bunkum----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
	Restricted permeability	1.00		

Table 16a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
897C2, 897C3:				
Atlas-----------	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Depth to saturated zone	1.00		
897D2, 897D3:				
Bunkum----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
	Restricted permeability	1.00		
	Slope	0.96		
Atlas-----------	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Depth to saturated zone	1.00		
	Slope	0.96		
914C3:				
Atlas-----------	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Depth to saturated zone	1.00		
Grantfork-------	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Depth to saturated zone	1.00		
993A:				
Cowden----------	Very limited		Very limited	
	Restricted permeability	1.00	Ponding	1.00
	Ponding	1.00		
	Depth to saturated zone	1.00		
Piasa-----------	Very limited		Very limited	
	Restricted permeability	1.00	Ponding	1.00
	Ponding	1.00		
	Depth to saturated zone	1.00		
3076A:				
Otter-----------	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	0.53
	Restricted permeability	0.46		

Table 16a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
3107A:				
Sawmill---------	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	0.53
	Restricted permeability	0.46		
3304A:				
Landes----------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Poor filtering capacity	1.00	Seepage	1.00
3333A:				
Wakeland--------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	0.53
	Restricted permeability	0.46		
3428A:				
Coffeen---------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	0.46		
3451A:				
Lawson----------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	0.53
	Restricted permeability	0.46		
9017A:				
Keomah----------	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.08
	Restricted permeability	1.00		
9257A:				
Clarksdale------	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.08
	Restricted permeability	1.00		
9279B:				
Rozetta---------	Somewhat limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53
	Depth to saturated zone	0.40	Slope	0.18

Table 16b.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Trench sanitary landfill: Rating class and limiting features	Trench sanitary landfill: Value	Area sanitary landfill: Rating class and limiting features	Area sanitary landfill: Value	Daily cover for landfill: Rating class and limiting features	Daily cover for landfill: Value
6B2, 6C2:						
Fishhook------------	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
8D2, 8D3:						
Hickory-------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	0.96	Slope	0.96
	Too clayey	0.50			Too clayey	0.50
8F, 8F2, 8G:						
Hickory-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	0.50			Too clayey	0.50
16A:						
Rushville-----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
					Depth to saturated zone	1.00
					Too clayey	0.50
17A:						
Keomah--------------	Not limited		Not limited		Very limited	
					Depth to saturated zone	1.00
					Too clayey	0.50
31A:						
Pierron-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Ponding	1.00
					Too clayey	0.50
43A:						
Ipava---------------	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
46A:						
Herrick-------------	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
50A:						
Virden--------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50

Table 16b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
112A:						
Cowden	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
113A, 113B:						
Oconee	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
119B2, 119C2, 119C3:						
Elco	Somewhat limited		Not limited		Somewhat limited	
	Too clayey	0.50			Too clayey	0.50
					Depth to saturated zone	0.25
119D2, 119D3:						
Elco	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	0.96	Slope	0.96
	Too clayey	0.50			Too clayey	0.50
					Depth to saturated zone	0.25
127B:						
Harrison	Somewhat limited		Not limited		Somewhat limited	
	Too clayey	0.50			Too clayey	0.50
					Depth to saturated zone	0.25
134C2:						
Camden	Very limited		Not limited		Somewhat limited	
	Seepage	1.00			Too sandy	0.50
	Too sandy	1.00			Too clayey	0.50
					Seepage	0.22
250D:						
Velma	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	0.96	Slope	0.96
	Too clayey	0.50			Too clayey	0.50
257A, 257B:						
Clarksdale	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
259B, 259B2, 259C2:						
Assumption	Somewhat limited		Not limited		Somewhat limited	
	Too clayey	0.50			Too clayey	0.50
					Depth to saturated zone	0.25
279A, 279B, 279C2:						
Rozetta	Somewhat limited		Not limited		Somewhat limited	
	Too clayey	0.50			Too clayey	0.50

Table 16b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
280B, 280C2:						
Fayette	Somewhat limited		Not limited		Somewhat limited	
	Too clayey	0.50			Too clayey	0.50
470B:						
Keller	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
477B, 477C2, 477C3:						
Winfield	Somewhat limited		Not limited		Somewhat limited	
	Too clayey	0.50			Too clayey	0.50
					Depth to saturated zone	0.25
477D3:						
Winfield	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	0.96	Slope	0.96
	Too clayey	0.50			Too clayey	0.50
					Depth to saturated zone	0.25
515B3, 515C3:						
Bunkum	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
515D3:						
Bunkum	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Depth to saturated zone	1.00
	Too clayey	0.50			Slope	0.96
					Too clayey	0.50
517A, 517B:						
Marine	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
536:						
Dumps	Not rated		Not rated		Not rated	
570D2:						
Martinsville	Very limited		Somewhat limited		Somewhat limited	
	Seepage	1.00	Slope	0.96	Slope	0.96
	Slope	0.96				
582B, 582C2:						
Homen	Somewhat limited		Not limited		Somewhat limited	
	Too clayey	0.50			Too clayey	0.50
					Depth to saturated zone	0.25
587B:						
Terril	Not limited		Not limited		Not limited	

Table 16b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
657A:						
Burksville----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
660C2:						
Coatsburg-----------	Very limited		Not limited		Very limited	
	Too clayey	1.00			Depth to saturated zone	1.00
					Too clayey	1.00
705B:						
Buckhart------------	Somewhat limited		Not limited		Somewhat limited	
	Too clayey	0.50			Too clayey	0.50
					Depth to saturated zone	0.25
713G:						
Judyville-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
					Too acid	1.00
802B:						
Orthents------------	Not limited		Not limited		Not limited	
802E:						
Orthents------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
830:						
Landfills-----------	Not rated		Not rated		Not rated	
880B2:						
Coulterville--------	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
Darmstadt-----------	Very limited		Not limited		Very limited	
	Sodium content	1.00			Sodium content	1.00
					Depth to saturated zone	1.00
882B:						
Oconee--------------	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
Coulterville--------	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50

Table 16b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
882B:						
Darmstadt	Very limited		Not limited		Very limited	
	Sodium content	1.00			Sodium content	1.00
					Depth to saturated zone	1.00
885A:						
Virden	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
Fosterburg	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
894A:						
Herrick	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
Biddle	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
Piasa	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Sodium content	1.00			Depth to saturated zone	1.00
	Too clayey	0.50			Sodium content	1.00
					Too clayey	0.50
897C2, 897C3:						
Bunkum	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
Atlas	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
897D2, 897D3:						
Bunkum	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Depth to saturated zone	1.00
	Too clayey	0.50			Slope	0.96
					Too clayey	0.50
Atlas	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Depth to saturated zone	1.00
	Too clayey	0.50			Slope	0.96
					Too clayey	0.50

Table 16b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
914C3:						
Atlas	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
Grantfork	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
993A:						
Cowden	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
Piasa	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Sodium content	1.00			Depth to saturated zone	1.00
	Too clayey	0.50			Sodium content	1.00
					Too clayey	0.50
3076A:						
Otter	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
3107A:						
Sawmill	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
3304A:						
Landes	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00				
3333A:						
Wakeland	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
3428A:						
Coffeen	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Seepage	1.00				
3451A:						
Lawson	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00

Table 16b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9017A:						
Keomah	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
9257A:						
Clarksdale	Somewhat limited		Not limited		Very limited	
	Too clayey	0.50			Depth to saturated zone	1.00
					Too clayey	0.50
9279B:						
Rozetta	Somewhat limited		Not limited		Somewhat limited	
	Too clayey	0.50			Too clayey	0.50

Table 17.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Potential as source of topsoil: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
6B2:				
Fishhook	Fair		Poor	
	Depth to saturated zone	0.14	Low strength	0.00
	Too clayey	0.64	Depth to saturated zone	0.14
			Shrink-swell	0.33
6C2:				
Fishhook	Fair		Poor	
	Depth to saturated zone	0.14	Low strength	0.00
	Too clayey	0.64	Depth to saturated zone	0.14
			Shrink-swell	0.36
8D2:				
Hickory	Fair		Poor	
	Slope	0.04	Low strength	0.00
	Too clayey	0.57	Shrink-swell	0.97
	Rock fragments	0.97		
8D3:				
Hickory	Fair		Poor	
	Slope	0.04	Low strength	0.00
	Too clayey	0.58	Shrink-swell	0.97
	Rock fragments	0.97		
8F:				
Hickory	Poor		Poor	
	Slope	0.00	Slope	0.00
	Too clayey	0.58	Low strength	0.00
	Rock fragments	0.88	Shrink-swell	0.98
8F2, 8G:				
Hickory	Poor		Poor	
	Slope	0.00	Slope	0.00
	Too clayey	0.57	Low strength	0.00
	Rock fragments	0.88	Shrink-swell	0.99
16A:				
Rushville	Poor		Poor	
	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.00	Low strength	0.00
			Shrink-swell	0.49
17A:				
Keomah	Fair		Poor	
	Depth to saturated zone	0.04	Low strength	0.00
	Too clayey	0.05	Depth to saturated zone	0.04
			Shrink-swell	0.89

Table 17.--Construction Materials--Continued

Map symbol and soil name	Potential as source of topsoil: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
31A:				
Pierron	Poor		Poor	
	Depth to saturated zone	0.00	Low strength	0.00
	Too clayey	0.00	Depth to saturated zone	0.00
	Too acid	0.50	Shrink-swell	0.42
43A:				
Ipava	Fair		Poor	
	Too clayey	0.14	Low strength	0.00
	Depth to saturated zone	0.14	Depth to saturated zone	0.14
			Shrink-swell	0.83
46A:				
Herrick	Fair		Poor	
	Too clayey	0.05	Low strength	0.00
	Depth to saturated zone	0.14	Depth to saturated zone	0.14
			Shrink-swell	0.47
50A:				
Virden	Poor		Poor	
	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.02	Low strength	0.00
			Shrink-swell	0.35
112A:				
Cowden	Poor		Poor	
	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.05	Low strength	0.00
			Shrink-swell	0.57
113A:				
Oconee	Fair		Poor	
	Depth to saturated zone	0.04	Low strength	0.00
	Too clayey	0.05	Depth to saturated zone	0.04
			Shrink-swell	0.38
113B:				
Oconee	Fair		Poor	
	Depth to saturated zone	0.04	Low strength	0.00
	Too clayey	0.05	Depth to saturated zone	0.04
			Shrink-swell	0.38
119B2, 119C2:				
Elco	Fair		Poor	
	Too clayey	0.57	Low strength	0.00
	Depth to saturated zone	0.98	Shrink-swell	0.43
			Depth to saturated zone	0.98

Table 17.--Construction Materials--Continued

Map symbol and soil name	Potential as source of topsoil: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
119C3:				
Elco	Fair		Poor	
	Too clayey	0.58	Low strength	0.00
	Depth to saturated zone	0.98	Shrink-swell	0.47
			Depth to saturated zone	0.98
119D2:				
Elco	Fair		Poor	
	Slope	0.04	Low strength	0.00
	Too clayey	0.57	Shrink-swell	0.38
	Depth to saturated zone	0.98	Depth to saturated zone	0.98
119D3:				
Elco	Fair		Poor	
	Slope	0.04	Low strength	0.00
	Too clayey	0.58	Shrink-swell	0.47
	Depth to saturated zone	0.98	Depth to saturated zone	0.98
127B:				
Harrison	Fair		Poor	
	Too clayey	0.67	Low strength	0.00
	Depth to saturated zone	0.98	Shrink-swell	0.87
			Depth to saturated zone	0.98
134C2:				
Camden	Fair		Good	
	Too clayey	0.49		
250D:				
Velma	Fair		Poor	
	Slope	0.04	Low strength	0.00
	Too clayey	0.67	Shrink-swell	0.96
257A:				
Clarksdale	Fair		Poor	
	Too clayey	0.01	Low strength	0.00
	Depth to saturated zone	0.04	Depth to saturated zone	0.04
			Shrink-swell	0.50
257B:				
Clarksdale	Fair		Poor	
	Too clayey	0.01	Low strength	0.00
	Depth to saturated zone	0.04	Depth to saturated zone	0.04
			Shrink-swell	0.75
259B:				
Assumption	Fair		Poor	
	Too clayey	0.64	Low strength	0.00
	Depth to saturated zone	0.98	Shrink-swell	0.63
			Depth to saturated zone	0.98

Table 17.--Construction Materials--Continued

Map symbol and soil name	Potential as source of topsoil		Potential as source of roadfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value
259B2:				
Assumption----------	Fair		Poor	
	Too clayey	0.64	Low strength	0.00
	Depth to saturated zone	0.98	Shrink-swell	0.51
			Depth to saturated zone	0.98
259C2:				
Assumption----------	Fair		Poor	
	Too clayey	0.64	Low strength	0.00
	Depth to saturated zone	0.98	Shrink-swell	0.31
			Depth to saturated zone	0.98
279A:				
Rozetta-------------	Fair		Poor	
	Too clayey	0.60	Low strength	0.00
			Shrink-swell	0.96
279B:				
Rozetta-------------	Fair		Poor	
	Too clayey	0.57	Low strength	0.00
			Shrink-swell	0.92
279C2:				
Rozetta-------------	Fair		Poor	
	Too clayey	0.60	Low strength	0.00
			Shrink-swell	0.90
280B:				
Fayette-------------	Fair		Poor	
	Too clayey	0.64	Low strength	0.00
			Shrink-swell	0.87
280C2:				
Fayette-------------	Fair		Poor	
	Too clayey	0.57	Low strength	0.00
			Shrink-swell	0.87
470B:				
Keller--------------	Fair		Poor	
	Depth to saturated zone	0.14	Low strength	0.00
	Too clayey	0.64	Depth to saturated zone	0.14
			Shrink-swell	0.43
477B:				
Winfield------------	Fair		Poor	
	Too clayey	0.58	Low strength	0.00
	Depth to saturated zone	0.98	Shrink-swell	0.87
			Depth to saturated zone	0.98
477C2:				
Winfield------------	Fair		Poor	
	Too clayey	0.58	Low strength	0.00
	Depth to saturated zone	0.98	Shrink-swell	0.95
			Depth to saturated zone	0.98

Table 17.--Construction Materials--Continued

Map symbol and soil name	Potential as source of topsoil: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
477C3:				
Winfield------------	Fair		Poor	
	Too clayey	0.57	Low strength	0.00
	Depth to saturated zone	0.98	Shrink-swell	0.95
			Depth to saturated zone	0.98
477D3:				
Winfield------------	Fair		Poor	
	Slope	0.04	Low strength	0.00
	Too clayey	0.58	Shrink-swell	0.96
	Depth to saturated zone	0.98	Depth to saturated zone	0.98
515B3, 515C3:				
Bunkum--------------	Fair		Poor	
	Depth to saturated zone	0.14	Low strength	0.00
	Too clayey	0.64	Depth to saturated zone	0.14
			Shrink-swell	0.99
515D3:				
Bunkum--------------	Fair		Poor	
	Slope	0.04	Low strength	0.00
	Depth to saturated zone	0.14	Depth to saturated zone	0.14
	Too clayey	0.64	Shrink-swell	0.99
517A, 517B:				
Marine--------------	Fair		Poor	
	Too clayey	0.01	Low strength	0.00
	Depth to saturated zone	0.04	Depth to saturated zone	0.04
	Too acid	0.88	Shrink-swell	0.75
536:				
Dumps---------------	Not rated		Not rated	
570D2:				
Martinsville--------	Fair		Good	
	Slope	0.04		
	Too clayey	0.57		
582B:				
Homen---------------	Fair		Poor	
	Too clayey	0.58	Low strength	0.00
	Depth to saturated zone	0.98	Shrink-swell	0.93
			Depth to saturated zone	0.98
582C2:				
Homen---------------	Fair		Poor	
	Too clayey	0.58	Low strength	0.00
	Depth to saturated zone	0.98	Shrink-swell	0.95
			Depth to saturated zone	0.98
587B:				
Terril--------------	Good		Poor	
			Low strength	0.00

Table 17.--Construction Materials--Continued

Map symbol and soil name	Potential as source of topsoil: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
657A:				
Burksville	Poor		Poor	
	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Sodium content	0.22	Low strength	0.00
	Too clayey	0.64	Shrink-swell	0.90
660C2:				
Coatsburg	Poor		Poor	
	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.00	Low strength	0.00
			Shrink-swell	0.12
705B:				
Buckhart	Fair		Poor	
	Too clayey	0.67	Low strength	0.00
	Depth to saturated zone	0.98	Shrink-swell	0.87
			Depth to saturated zone	0.98
713G:				
Judyville	Poor		Poor	
	Slope	0.00	Depth to bedrock	0.00
	Rock fragments	0.00	Slope	0.00
	Depth to bedrock	0.58		
	Too acid	0.92		
802B:				
Orthents	Good		Poor	
			Low strength	0.00
			Shrink-swell	0.87
802E:				
Orthents	Poor		Poor	
	Slope	0.00	Slope	0.00
			Low strength	0.00
			Shrink-swell	0.87
830:				
Landfills	Not rated		Not rated	
880B2:				
Coulterville	Fair		Poor	
	Depth to saturated zone	0.04	Low strength	0.00
	Sodium content	0.22	Depth to saturated zone	0.04
	Too clayey	0.64	Shrink-swell	0.87
Darmstadt	Poor		Poor	
	Sodium content	0.00	Low strength	0.00
	Depth to saturated zone	0.04	Depth to saturated zone	0.04
	Too clayey	0.64	Shrink-swell	0.89
882B:				
Oconee	Fair		Poor	
	Depth to saturated zone	0.04	Low strength	0.00
	Too clayey	0.05	Depth to saturated zone	0.04
			Shrink-swell	0.38

Table 17.--Construction Materials--Continued

Map symbol and soil name	Potential as source of topsoil: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
882B:				
Coulterville--------	Fair		Poor	
	Depth to saturated zone	0.04	Low strength	0.00
	Sodium content	0.22	Depth to saturated zone	0.04
	Too clayey	0.64	Shrink-swell	0.87
Darmstadt-----------	Poor		Poor	
	Sodium content	0.00	Low strength	0.00
	Depth to saturated zone	0.04	Depth to saturated zone	0.04
	Too clayey	0.64	Shrink-swell	0.89
885A:				
Virden--------------	Poor		Poor	
	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.25	Low strength	0.00
			Shrink-swell	0.18
Fosterburg----------	Poor		Poor	
	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.07	Low strength	0.00
	Sodium content	0.22	Shrink-swell	0.16
894A:				
Herrick-------------	Fair		Poor	
	Too clayey	0.05	Low strength	0.00
	Depth to saturated zone	0.14	Depth to saturated zone	0.14
			Shrink-swell	0.47
Biddle--------------	Fair		Poor	
	Too clayey	0.05	Low strength	0.00
	Depth to saturated zone	0.14	Depth to saturated zone	0.14
	Sodium content	0.22	Shrink-swell	0.28
Piasa---------------	Poor		Poor	
	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Sodium content	0.00	Low strength	0.00
	Too clayey	0.01	Shrink-swell	0.49
897C2:				
Bunkum--------------	Fair		Poor	
	Depth to saturated zone	0.14	Low strength	0.00
	Too clayey	0.70	Depth to saturated zone	0.14
			Shrink-swell	0.99
Atlas---------------	Fair		Poor	
	Too clayey	0.01	Low strength	0.00
	Depth to saturated zone	0.04	Depth to saturated zone	0.04
			Shrink-swell	0.22

Table 17.--Construction Materials--Continued

Map symbol and soil name	Potential as source of topsoil: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
897C3:				
Bunkum	Fair		Poor	
	Depth to saturated zone	0.14	Low strength	0.00
	Too clayey	0.70	Depth to saturated zone	0.14
			Shrink-swell	0.99
Atlas	Fair		Poor	
	Depth to saturated zone	0.04	Low strength	0.00
	Too clayey	0.05	Depth to saturated zone	0.04
			Shrink-swell	0.22
897D2:				
Bunkum	Fair		Poor	
	Slope	0.04	Low strength	0.00
	Depth to saturated zone	0.14	Depth to saturated zone	0.14
	Too clayey	0.70	Shrink-swell	0.99
Atlas	Fair		Poor	
	Too clayey	0.01	Low strength	0.00
	Depth to saturated zone	0.04	Depth to saturated zone	0.04
	Slope	0.04	Shrink-swell	0.22
897D3:				
Bunkum	Fair		Poor	
	Slope	0.04	Low strength	0.00
	Depth to saturated zone	0.14	Depth to saturated zone	0.14
	Too clayey	0.64	Shrink-swell	0.99
Atlas	Fair		Poor	
	Too clayey	0.01	Low strength	0.00
	Depth to saturated zone	0.04	Depth to saturated zone	0.04
	Slope	0.04	Shrink-swell	0.22
914C3:				
Atlas	Fair		Poor	
	Too clayey	0.01	Low strength	0.00
	Depth to saturated zone	0.04	Depth to saturated zone	0.04
			Shrink-swell	0.22
Grantfork	Fair		Poor	
	Depth to saturated zone	0.04	Low strength	0.00
	Sodium content	0.22	Depth to saturated zone	0.04
	Too clayey	0.57		
993A:				
Cowden	Poor		Poor	
	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.05	Low strength	0.00
			Shrink-swell	0.57

Table 17.--Construction Materials--Continued

Map symbol and soil name	Potential as source of topsoil		Potential as source of roadfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value
993A:				
Piasa	Poor		Poor	
	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Sodium content	0.00	Low strength	0.00
	Too clayey	0.01	Shrink-swell	0.49
3076A:				
Otter	Poor		Poor	
	Depth to saturated zone	0.00	Depth to saturated zone	0.00
			Low strength	0.00
3107A:				
Sawmill	Poor		Poor	
	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.98	Low strength	0.00
			Shrink-swell	0.87
3304A:				
Landes	Good		Good	
3333A:				
Wakeland	Fair		Fair	
	Depth to saturated zone	0.04	Depth to saturated zone	0.04
3428A:				
Coffeen	Fair		Fair	
	Depth to saturated zone	0.14	Depth to saturated zone	0.14
3451A:				
Lawson	Fair		Poor	
	Depth to saturated zone	0.14	Low strength	0.00
			Depth to saturated zone	0.14
9017A:				
Keomah	Fair		Poor	
	Too clayey	0.01	Low strength	0.00
	Depth to saturated zone	0.04	Depth to saturated zone	0.04
	Too acid	0.98	Shrink-swell	0.46
9257A:				
Clarksdale	Fair		Poor	
	Too clayey	0.01	Low strength	0.00
	Depth to saturated zone	0.04	Depth to saturated zone	0.04
			Shrink-swell	0.52
9279B:				
Rozetta	Fair		Poor	
	Too clayey	0.60	Low strength	0.00
	Too acid	0.98	Shrink-swell	0.87

Table 18a.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
6B2, 6C2:						
Fishhook------------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
8D2:						
Hickory-------------	Somewhat limited		Somewhat limited		Not limited	
	Seepage	0.72	Piping	0.01		
	Slope	0.02				
8D3:						
Hickory-------------	Somewhat limited		Somewhat limited		Not limited	
	Seepage	0.72	Piping	0.12		
	Slope	0.02				
8F:						
Hickory-------------	Somewhat limited		Somewhat limited		Not limited	
	Seepage	0.72	Piping	0.14		
	Slope	0.34				
8F2:						
Hickory-------------	Somewhat limited		Somewhat limited		Not limited	
	Seepage	0.72	Piping	0.09		
	Slope	0.36				
8G:						
Hickory-------------	Somewhat limited		Somewhat limited		Not limited	
	Slope	0.99	Piping	0.11		
	Seepage	0.72				
16A:						
Rushville-----------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Ponding	1.00	Cutbanks cave	0.50
			Depth to saturated zone	1.00	Slow refill	0.28
			Piping	0.01		
17A:						
Keomah--------------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
			Piping	0.23		
31A:						
Pierron-------------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Depth to saturated zone	1.00	Cutbanks cave	0.50
					Slow refill	0.28
			Ponding	1.00		

Table 18a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
43A:						
Ipava	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
			Piping	0.01		
46A:						
Herrick	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
					Cutbanks cave	0.10
50A:						
Virden	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Ponding	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
112A:						
Cowden	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Ponding	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
113A, 113B:						
Oconee	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
					Cutbanks cave	0.10
119B2, 119C2, 119C3:						
Elco	Somewhat limited		Somewhat limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.98
					Depth to water	0.14
					Cutbanks cave	0.10
119D2, 119D3:						
Elco	Somewhat limited		Somewhat limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.98
	Slope	0.02			Depth to water	0.14
					Cutbanks cave	0.10
127B:						
Harrison	Somewhat limited		Somewhat limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.28
					Depth to water	0.14
					Cutbanks cave	0.10
134C2:						
Camden	Very limited		Very limited		Not limited	
	Seepage	1.00	Piping	1.00		
			Seepage	0.10		
250D:						
Velma	Somewhat limited		Somewhat limited		Not limited	
	Seepage	0.72	Piping	0.09		
	Slope	0.02				

Table 18a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
257A, 257B:						
Clarksdale----------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
259B, 259B2:						
Assumption----------	Somewhat limited		Somewhat limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.28
					Depth to water	0.14
					Cutbanks cave	0.10
259C2:						
Assumption----------	Somewhat limited		Somewhat limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.98
					Depth to water	0.14
					Cutbanks cave	0.10
279A:						
Rozetta-------------	Somewhat limited		Not limited		Very limited	
	Seepage	0.72			Depth to water	1.00
279B:						
Rozetta-------------	Somewhat limited		Not limited		Very limited	
	Seepage	0.72			Depth to water	1.00
279C2:						
Rozetta-------------	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.01	Depth to water	1.00
280B:						
Fayette-------------	Somewhat limited		Somewhat limited		Not limited	
	Seepage	0.72	Piping	0.09		
280C2:						
Fayette-------------	Somewhat limited		Somewhat limited		Not limited	
	Seepage	0.72	Piping	0.03		
470B:						
Keller--------------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
477B:						
Winfield------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.28
					Depth to water	0.14
			Piping	0.08	Cutbanks cave	0.10
477C2, 477C3:						
Winfield------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.28
					Depth to water	0.14
			Piping	0.43	Cutbanks cave	0.10
477D3:						
Winfield------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.28
	Slope	0.02			Depth to water	0.14
			Piping	0.46	Cutbanks cave	0.10

Table 18a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
515B3, 515C3:						
Bunkum	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
					Cutbanks cave	0.10
			Piping	0.57		
515D3:						
Bunkum	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
	Slope	0.02			Cutbanks cave	0.10
			Piping	0.57		
517A, 517B:						
Marine	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Depth to saturated zone	1.00	Cutbanks cave	0.50
					Slow refill	0.28
536:						
Dumps	Not rated		Not rated		Not rated	
570D2:						
Martinsville	Very limited		Very limited		Not limited	
	Seepage	1.00	Piping	1.00		
	Slope	0.02	Seepage	0.01		
582B, 582C2:						
Homen	Somewhat limited		Somewhat limited		Somewhat limited	
	Seepage	0.04	Depth to saturated zone	0.68	Slow refill	0.96
					Depth to water	0.14
			Piping	0.27	Cutbanks cave	0.10
587B:						
Terril	Somewhat limited		Somewhat limited		Not limited	
	Seepage	0.72	Piping	0.33		
657A:						
Burksville	Not limited		Very limited		Somewhat limited	
			Ponding	1.00	Slow refill	0.96
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	1.00		
660C2:						
Coatsburg	Not limited		Very limited		Somewhat limited	
			Depth to saturated zone	1.00	Slow refill	0.96
					Cutbanks cave	0.10
			Hard to pack	1.00		
705B:						
Buckhart	Somewhat limited		Somewhat limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.28
					Depth to water	0.14
			Piping	0.03	Cutbanks cave	0.10
713G:						
Judyville	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.85	Depth to hard bedrock	1.00
	Slope	0.97	Seepage	0.01		
	Depth to bedrock	0.85				

Table 18a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
802B:						
Orthents	Somewhat limited		Somewhat limited		Not limited	
	Seepage	0.04	Piping	0.50		
802E:						
Orthents	Somewhat limited		Somewhat limited		Not limited	
	Slope	0.15	Piping	0.50		
	Seepage	0.04				
830:						
Landfills	Not rated		Not rated		Not rated	
880B2:						
Coulterville	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
					Cutbanks cave	0.10
			Piping	1.00		
Darmstadt	Not limited		Very limited		Very limited	
			Piping	1.00	Slow refill	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
882B:						
Oconee	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
					Cutbanks cave	0.10
Coulterville	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
					Cutbanks cave	0.10
			Piping	1.00		
Darmstadt	Not limited		Very limited		Very limited	
			Piping	1.00	Slow refill	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
885A:						
Virden	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Ponding	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
Fosterburg	Not limited		Very limited		Somewhat limited	
			Ponding	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	0.78		
894A:						
Herrick	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
					Cutbanks cave	0.10

Table 18a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
894A:						
Biddle	Not limited		Very limited		Somewhat limited	
			Depth to saturated zone	1.00	Slow refill	0.96
					Cutbanks cave	0.10
			Piping	0.78		
Piasa	Not limited		Very limited		Somewhat limited	
			Ponding	1.00	Slow refill	0.96
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	1.00		
897C2, 897C3:						
Bunkum	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
					Cutbanks cave	0.10
			Piping	0.44		
Atlas	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	Slow refill	1.00
					Cutbanks cave	0.10
			Hard to pack	0.71		
897D2:						
Bunkum	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
	Slope	0.02			Cutbanks cave	0.10
			Piping	0.44		
Atlas	Somewhat limited		Very limited		Very limited	
	Slope	0.02	Depth to saturated zone	1.00	Slow refill	1.00
					Cutbanks cave	0.10
			Hard to pack	0.71		
897D3:						
Bunkum	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
	Slope	0.02			Cutbanks cave	0.10
			Piping	0.41		
Atlas	Somewhat limited		Very limited		Very limited	
	Slope	0.02	Depth to saturated zone	1.00	Slow refill	1.00
					Cutbanks cave	0.10
			Hard to pack	0.54		
914C3:						
Atlas	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	Slow refill	1.00
					Cutbanks cave	0.10
			Hard to pack	0.54		
Grantfork	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
					Cutbanks cave	0.10
			Piping	1.00		

Table 18a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
993A:						
Cowden	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Ponding	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
Piasa	Not limited		Very limited		Somewhat limited	
			Ponding	1.00	Slow refill	0.96
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	1.00		
3076A:						
Otter	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Ponding	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	0.75		
3107A:						
Sawmill	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Ponding	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	0.02		
3304A:						
Landes	Very limited		Somewhat limited		Not limited	
	Seepage	1.00	Seepage	0.12		
3333A:						
Wakeland	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Piping	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
3428A:						
Coffeen	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Piping	1.00	Cutbanks cave	0.10
			Depth to saturated zone	1.00		
3451A:						
Lawson	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
			Piping	0.68		
9017A:						
Keomah	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.30	Depth to saturated zone	1.00	Slow refill	0.70
					Cutbanks cave	0.10
9257A:						
Clarksdale	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.30	Depth to saturated zone	1.00	Slow refill	0.70
					Cutbanks cave	0.10

Table 18a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9279B:						
Rozetta-------------	Somewhat limited		Not limited		Very limited	
	Seepage	0.72			Depth to water	1.00

Table 18b.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
6B2:						
Fishhook------------	Somewhat limited		Very limited		Very limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.25		
6C2:						
Fishhook------------	Somewhat limited		Very limited		Very limited	
	Slope	0.99	K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.99		
8D2:						
Hickory-------------	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Slope	1.00	Slope	0.96
			K factor <0.35 to >0.20	0.89	Cutbanks cave	0.10
8D3:						
Hickory-------------	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Slope	1.00	Slope	0.96
			K factor <0.35 to >0.20	0.56	Cutbanks cave	0.10
8F:						
Hickory-------------	Very limited		Very limited		Very limited	
	Slope	1.00	K factor >0.35	1.00	Slope	1.00
			Slope	1.00	Cutbanks cave	0.10
8F2:						
Hickory-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			K factor <0.35 to >0.20	0.89	Cutbanks cave	0.10
8G:						
Hickory-------------	Very limited		Very limited		Very limited	
	Slope	1.00	K factor >0.35	1.00	Slope	1.00
			Slope	1.00	Cutbanks cave	0.10
16A:						
Rushville-----------	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Ponding	1.00
			Ponding	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.50
17A:						
Keomah--------------	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10

Table 18b.--Water Management--Continued

Map symbol and soil name	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
31A:						
Pierron	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Depth to saturated zone	1.00
			Ponding	1.00	Ponding	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.50
43A:						
Ipava	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
46A:						
Herrick	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
50A:						
Virden	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Ponding	1.00
			Ponding	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
112A:						
Cowden	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Ponding	1.00
			Ponding	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
113A:						
Oconee	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
113B:						
Oconee	Somewhat limited		Very limited		Very limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.25		
119B2:						
Elco	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	0.99
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.25		
119C2, 119C3:						
Elco	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.99	K factor >0.35	1.00	Depth to saturated zone	0.99
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.99		

Table 18b.--Water Management--Continued

Map symbol and soil name	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
119D2, 119D3:						
Elco----------------	Very limited		Very limited		Somewhat limited	
	Slope	1.00	K factor >0.35	1.00	Depth to saturated zone	0.99
			Slope	1.00	Slope	0.96
			Depth to saturated zone	1.00	Cutbanks cave	0.10
127B:						
Harrison------------	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	0.99
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.25		
134C2:						
Camden--------------	Somewhat limited		Very limited		Very limited	
	Slope	0.99	K factor >0.35	1.00	Cutbanks cave	1.00
			Slope	0.99		
250D:						
Velma---------------	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Slope	1.00	Slope	0.96
			K factor <0.35 to >0.20	0.56	Cutbanks cave	0.10
257A:						
Clarksdale----------	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
257B:						
Clarksdale----------	Somewhat limited		Very limited		Very limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.25		
259B, 259B2:						
Assumption----------	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	0.99
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.25		
259C2:						
Assumption----------	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.99	K factor >0.35	1.00	Depth to saturated zone	0.99
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.99		
279A:						
Rozetta-------------	Not limited		Very limited		Somewhat limited	
			K factor >0.35	1.00	Depth to saturated zone	0.15
					Cutbanks cave	0.10

Table 18b.--Water Management--Continued

Map symbol and soil name	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
279B:						
Rozetta	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	0.15
			Slope	0.25	Cutbanks cave	0.10
279C2:						
Rozetta	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.99	K factor >0.35	1.00	Depth to saturated zone	0.15
			Slope	0.99	Cutbanks cave	0.10
280B:						
Fayette	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	K factor >0.35	1.00	Cutbanks cave	0.10
			Slope	0.25		
280C2:						
Fayette	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.99	K factor >0.35	1.00	Cutbanks cave	0.10
			Slope	0.99		
470B:						
Keller	Somewhat limited		Very limited		Very limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.25		
477B:						
Winfield	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	0.99
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.25		
477C2, 477C3:						
Winfield	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.99	K factor >0.35	1.00	Depth to saturated zone	0.99
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.99		
477D3:						
Winfield	Very limited		Very limited		Somewhat limited	
	Slope	1.00	K factor >0.35	1.00	Depth to saturated zone	0.99
			Slope	1.00	Slope	0.96
			Depth to saturated zone	1.00	Cutbanks cave	0.10
515B3:						
Bunkum	Somewhat limited		Very limited		Very limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.25		

Table 18b.--Water Management--Continued

Map symbol and soil name	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
515C3:						
Bunkum	Somewhat limited		Very limited		Very limited	
	Slope	0.99	K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.99		
515D3:						
Bunkum	Very limited		Very limited		Very limited	
	Slope	1.00	K factor >0.35	1.00	Depth to saturated zone	1.00
			Slope	1.00	Slope	0.96
			Depth to saturated zone	1.00	Cutbanks cave	0.10
517A:						
Marine	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.50
517B:						
Marine	Somewhat limited		Very limited		Very limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.50
			Slope	0.25		
536:						
Dumps	Not rated		Not rated		Not rated	
570D2:						
Martinsville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Cutbanks cave	1.00
			K factor <0.35 to >0.20	0.89	Slope	0.96
582B:						
Homen	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	0.99
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.25		
582C2:						
Homen	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.99	K factor >0.35	1.00	Depth to saturated zone	0.99
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.99		
587B:						
Terril	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.25	K factor <0.35 to >0.20	0.89	Cutbanks cave	0.10
			Slope	0.25		

Table 18b.--Water Management--Continued

Map symbol and soil name	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
657A:						
Burksville----------	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Ponding	1.00
			Ponding	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
660C2:						
Coatsburg-----------	Somewhat limited		Very limited		Very limited	
	Slope	0.99	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Slope	0.99	Cutbanks cave	0.10
			K factor <0.35 to >0.20	0.56	Too clayey	0.02
705B:						
Buckhart------------	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	0.99
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.25		
713G:						
Judyville-----------	Very limited		Very limited		Very limited	
	Slope	1.00	K factor >0.35	1.00	Depth to hard bedrock	1.00
	Hard bedrock at a depth of <40"	1.00	Slope	1.00	Slope	1.00
	Rock fragments	0.05	Hard bedrock at a depth of <40"	1.00	Cutbanks cave	0.10
			Too sandy	1.00		
			Rock fragments	0.05		
802B:						
Orthents------------	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.36	K factor >0.35	1.00	Cutbanks cave	0.10
			Slope	0.36		
802E:						
Orthents------------	Very limited		Very limited		Very limited	
	Slope	1.00	K factor >0.35	1.00	Slope	1.00
			Slope	1.00	Cutbanks cave	0.10
830:						
Landfills-----------	Not rated		Not rated		Not rated	
880B2:						
Coulterville--------	Somewhat limited		Very limited		Very limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.25		
Darmstadt-----------	Somewhat limited		Very limited		Very limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.25		

Table 18b.--Water Management--Continued

Map symbol and soil name	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
882B:						
Oconee	Somewhat limited		Very limited		Very limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.25		
Coulterville	Somewhat limited		Very limited		Very limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.25		
Darmstadt	Somewhat limited		Very limited		Very limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.25		
885A:						
Virden	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Ponding	1.00
			Ponding	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
Fosterburg	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Ponding	1.00
			Ponding	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
894A:						
Herrick	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
Biddle	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
Piasa	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Ponding	1.00
			Ponding	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
897C2:						
Bunkum	Somewhat limited		Very limited		Very limited	
	Slope	0.99	K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.99		

Table 18b.--Water Management--Continued

Map symbol and soil name	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
897C2:						
Atlas	Somewhat limited		Very limited		Very limited	
	Slope	0.99	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Slope	0.99	Cutbanks cave	0.10
			K factor <0.35 to >0.20	0.89	Too clayey	0.01
897C3:						
Bunkum	Somewhat limited		Very limited		Very limited	
	Slope	0.99	K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.99		
Atlas	Somewhat limited		Very limited		Very limited	
	Slope	0.99	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Slope	0.99	Cutbanks cave	0.10
			K factor <0.35 to >0.20	0.56	Too clayey	0.01
897D2:						
Bunkum	Very limited		Very limited		Very limited	
	Slope	1.00	K factor >0.35	1.00	Depth to saturated zone	1.00
			Slope	1.00	Slope	0.96
			Depth to saturated zone	1.00	Cutbanks cave	0.10
Atlas	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Slope	0.96
			K factor <0.35 to >0.20	0.89	Cutbanks cave	0.10
					Too clayey	0.01
897D3:						
Bunkum	Very limited		Very limited		Very limited	
	Slope	1.00	K factor >0.35	1.00	Depth to saturated zone	1.00
			Slope	1.00	Slope	0.96
			Depth to saturated zone	1.00	Cutbanks cave	0.10
Atlas	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Slope	0.96
			K factor <0.35 to >0.20	0.56	Cutbanks cave	0.10
					Too clayey	0.02
914C3:						
Atlas	Somewhat limited		Very limited		Very limited	
	Slope	0.99	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Slope	0.99	Cutbanks cave	0.10
			K factor <0.35 to >0.20	0.56	Too clayey	0.02

Table 18b.--Water Management--Continued

Map symbol and soil name	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
914C3:						
Grantfork-----------	Somewhat limited		Very limited		Very limited	
	Slope	0.99	K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Slope	0.99	Too clayey	0.02
993A:						
Cowden--------------	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Ponding	1.00
			Ponding	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
Piasa---------------	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Ponding	1.00
			Ponding	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
3076A:						
Otter---------------	Not limited		Very limited		Very limited	
			Ponding	1.00	Ponding	1.00
			Depth to saturated zone	1.00	Flooding	1.00
			K factor <0.35 to >0.20	0.89	Depth to saturated zone	1.00
					Cutbanks cave	0.10
3107A:						
Sawmill-------------	Not limited		Very limited		Very limited	
			Ponding	1.00	Ponding	1.00
			Depth to saturated zone	1.00	Flooding	1.00
			K factor <0.35 to >0.20	0.56	Depth to saturated zone	1.00
					Cutbanks cave	0.10
3304A:						
Landes--------------	Not limited		Very limited		Very limited	
			Too sandy	1.00	Flooding	1.00
			K factor <0.35 to >0.20	0.89	Cutbanks cave	1.00
3333A:						
Wakeland------------	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Flooding	1.00
			Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Cutbanks cave	0.10
3428A:						
Coffeen-------------	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Flooding	1.00
			Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Cutbanks cave	0.10

Table 18b.--Water Management--Continued

Map symbol and soil name	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
3451A:						
Lawson	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	Flooding	1.00
			K factor <0.35 to >0.20	0.89	Depth to saturated zone	1.00
					Cutbanks cave	0.10
9017A:						
Keomah	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
9257A:						
Clarksdale	Not limited		Very limited		Very limited	
			K factor >0.35	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
9279B:						
Rozetta	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	K factor >0.35	1.00	Depth to saturated zone	0.15
			Slope	0.25	Cutbanks cave	0.10

Table 19.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
6B2:												
Fishhook----	0-7	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	25-40	5-15
	7-25	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	90-100	35-50	10-25
	25-49	Clay loam, clay, silty clay loam	CH, CL	A-7	0-1	0-5	95-100	90-100	80-90	75-85	40-60	20-35
	49-80	Clay loam, clay, silty clay loam	CH, CL	A-7	0-1	0-5	95-100	90-100	80-90	75-85	40-60	20-35
6C2:												
Fishhook----	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	25-40	5-15
	6-27	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	90-100	35-50	10-25
	27-58	Clay loam, clay, silty clay loam	CH, CL	A-7	0-1	0-5	95-100	90-100	80-90	75-85	40-60	20-35
	58-80	Clay loam, clay, silty clay loam	CH, CL	A-7	0-1	0-5	95-100	90-100	80-90	75-85	40-60	20-35
8D2:												
Hickory-----	0-6	Loam	CL	A-4, A-6	0	0-5	95-100	90-100	90-100	75-95	20-35	8-15
	6-47	Clay loam, silty clay loam, gravelly clay loam	CL	A-6, A-7	0-1	0-5	95-100	75-100	70-95	65-80	30-50	15-30
	47-60	Sandy loam, loam, gravelly clay loam	CL, CL-ML	A-4, A-6	0-1	0-5	85-100	75-95	70-95	60-80	20-40	5-20
8D3:												
Hickory-----	0-8	Clay loam	CL	A-6, A-7	0	0-5	95-100	90-100	80-95	70-85	35-45	15-25
	8-46	Clay loam, loam, gravelly clay loam	CL	A-6, A-7	0-1	0-5	95-100	75-100	70-95	65-80	35-45	15-25
	46-58	Clay loam, loam, gravelly clay loam	CL, ML, SC, SC-SM	A-2, A-4, A-6	0-1	0-5	85-100	70-95	45-95	25-75	25-40	10-20
	58-80	Loam, sandy loam, gravelly clay loam	CL, ML, SC, SC-SM	A-2, A-4, A-6	0-1	0-5	85-100	70-95	45-95	25-75	25-40	10-20
8F:												
Hickory-----	0-4	Silt loam	CL	A-4, A-6	0	0-5	95-100	90-100	75-100	55-100	30-35	10-15
	4-12	Loam	CL	A-4, A-6	0	0-5	95-100	90-100	75-100	55-100	25-30	10-15
	12-46	Clay loam, silty clay loam, loam, gravelly clay loam	CL	A-6, A-7	0-1	0-5	85-100	70-100	65-95	50-85	35-45	15-25
	46-58	Clay loam, loam, gravelly clay loam	CL, ML, SC, SC-SM	A-2, A-4, A-6	0-1	0-5	85-100	70-95	45-95	25-75	25-40	10-20
	58-80	Loam, sandy loam, gravelly clay loam	CL, ML, SC, SC-SM	A-2, A-4, A-6	0-1	0-5	85-100	70-95	45-95	25-75	25-40	10-20

Table 19.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
8F2:												
Hickory-----	0-4	Loam	CL	A-4, A-6	0	0-5	95-100	90-100	90-100	75-95	20-35	8-15
	4-37	Clay loam, silty clay loam, gravelly clay loam	CL	A-6, A-7	0-1	0-5	85-100	70-100	65-95	50-85	30-50	15-30
	37-60	Sandy loam, loam, gravelly clay loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0-1	0-5	85-100	70-95	45-95	25-75	20-40	5-20
8G:												
Hickory-----	0-4	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0-5	95-100	90-100	75-100	55-100	20-35	3-15
	4-12	Loam	CL, ML, CL-ML	A-4, A-6	0	0-5	95-100	90-100	75-100	55-100	20-35	3-15
	12-40	Clay loam, silty clay loam, gravelly clay loam	CL	A-6, A-7	0-1	0-5	85-100	70-100	65-95	50-85	30-50	15-30
	40-58	Loam, gravelly clay loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0-1	0-5	85-100	70-95	45-95	25-75	20-40	5-20
	58-63	Loam, sandy loam, gravelly clay loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0-1	0-5	85-100	70-95	45-95	25-75	20-40	5-20
16A:												
Rushville---	0-7	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	25-40	NP-15
	7-13	Silt loam, silt	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	20-40	NP-15
	13-32	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	95-100	95-100	45-60	20-35
	32-50	Silty clay loam, silty clay	CH, CL, MH, ML	A-7-6	0	0	100	100	95-100	95-100	45-60	15-30
	50-80	Silt loam, silty clay loam	CL	A-6, A-7-6, A-4	0	0	100	100	95-100	90-100	30-45	8-20
17A:												
Keomah------	0-11	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	25-35	10-15
	11-18	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	25-35	10-20
	18-33	Silty clay, silty clay loam	CH, CL	A-7-6	0	0	100	100	100	95-100	45-55	25-30
	33-51	Silty clay loam	CL, ML	A-6, A-7-6	0	0	100	100	100	95-100	35-45	15-25
	51-89	Silt loam	CL, CL-ML, ML	A-6, A-4	0	0	100	100	100	95-100	25-35	5-15
31A:												
Pierron-----	0-8	Silt loam	CL, ML	A-4, A-6	0	0	100	98-100	90-100	85-100	30-40	10-20
	8-20	Silt loam, silt	CL, ML	A-4, A-6	0	0	100	98-100	90-100	85-100	25-40	10-20
	20-36	Silty clay loam, silty clay	CH	A-7-6	0	0	100	100	95-100	93-100	50-60	30-40
	36-66	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	95-100	93-100	45-60	25-35
	66-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	35-45	15-25

Table 19.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
43A:												
Ipava-------	0-10	Silt loam	CL	A-4	0	0	100	100	97-100	95-100	24-37	4-14
	10-18	Silty clay loam	CL	A-7-6	0	0	100	100	97-100	95-100	40-46	15-20
	18-31	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	97-100	95-100	45-57	22-32
	31-50	Silty clay loam	CL	A-7-6	0	0	100	100	97-100	95-100	37-46	16-24
	50-60	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	96-100	93-100	24-37	7-18
46A:												
Herrick-----	0-13	Silt loam	CL, ML	A-7-6, A-6	0	0	100	100	95-100	90-100	35-45	15-25
	13-39	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	95-100	90-100	49-60	30-35
	39-60	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	40-55	20-35
	60-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	35-45	15-25
50A:												
Virden------	0-16	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	30-50	10-25
	16-49	Silty clay, silty clay loam	CH, CL	A-7-6	0	0	100	100	95-100	95-100	40-60	20-40
	49-60	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-50	10-25
112A:												
Cowden------	0-8	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	35-45	15-25
	8-19	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	35-45	15-25
	19-50	Silty clay loam, silty clay	CH	A-7-6	0	0	100	100	95-100	95-100	50-60	30-35
	50-58	Silt loam, silty clay loam	CL	A-6, A-4	0	0	100	100	95-100	95-100	35-45	15-25
	58-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	35-45	15-25
113A, 113B:												
Oconee------	0-8	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	35-45	15-25
	8-16	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	35-45	15-25
	16-47	Silty clay loam, silty clay	CH	A-7	0	0	100	100	95-100	90-100	50-60	30-35
	47-65	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-50	15-30
	65-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	35-45	15-25

Table 19.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
119B2, 119C2:												
Elco--------	0-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-15
	8-31	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	25-45	10-30
	31-60	Silty clay loam, loam, clay	CL	A-6, A-7	0	0	100	90-100	80-100	60-95	25-50	10-30
119C3:												
Elco--------	0-5	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	25-45	10-30
	5-33	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	25-45	10-30
	33-80	Silty clay loam, silty clay, clay loam, loam	CL	A-6, A-7	0	0	100	90-100	80-100	60-95	25-50	10-30
119D2:												
Elco--------	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	95-100	25-40	5-15
	6-28	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	25-45	10-30
	28-60	Silty clay loam, loam, clay	CL	A-6, A-7	0	0	100	90-100	80-100	60-95	25-50	10-30
119D3:												
Elco--------	0-5	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	25-45	10-30
	5-33	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	25-45	10-30
	33-80	Silty clay loam, silty clay, clay loam, loam	CL	A-6, A-7	0	0	100	90-100	80-100	60-95	25-50	10-30
127B:												
Harrison----	0-10	Silt loam	CL	A-4, A-6	0	0	100	100	100	95-100	30-40	8-15
	10-45	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	100	95-100	30-45	10-25
	45-65	Silty clay loam, clay loam, silt loam	CL	A-6, A-7	0	0-5	95-100	85-100	80-85	70-80	30-50	10-25
	65-80	Clay loam, clay, silty clay loam	CH, CL	A-6, A-7	0-1	0-5	95-100	85-100	80-95	70-90	35-55	15-30
134C2:												
Camden------	0-7	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	24-37	6-15
	7-34	Silt loam, silty clay loam	CL	A-6	0	0	100	97-100	95-100	95-100	35-46	14-24
	34-43	Loam, clay loam	CL, ML, SC	A-4, A-6	0	0	90-100	90-100	70-85	45-70	25-33	8-14
	43-80	Stratified loamy sand to sandy loam	SC-SM, SM	A-2-4, A-4, A-1-b	0	0	90-100	80-100	35-60	15-40	19-25	1-7

Table 19.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
250D:												
Velma-------	0-16	Silt loam, loam	CL	A-6, A-4	0	0	100	100	90-100	70-90	20-40	8-25
	16-54	Clay loam, loam, silty clay loam	CL	A-6, A-7-6	0-1	0-5	100	85-100	80-95	55-75	30-50	15-30
	54-80	Loam, clay loam, sandy loam	CL, ML, SC, SM	A-6, A-4, A-2	0-1	0-5	90-100	75-100	60-90	30-80	20-40	3-20
257A:												
Clarksdale--	0-8	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-40	10-20
	8-16	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	90-100	20-35	8-18
	16-47	Silty clay loam, silty clay	CH, CL	A-7	0	0	100	100	95-100	90-100	40-65	25-40
	47-67	Silt loam, silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	25-45	10-25
	67-80	Silt loam	CL	A-6	0	0	95-100	95-100	95-100	90-100	25-40	10-20
257B:												
Clarksdale--	0-9	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-40	10-20
	9-29	Silty clay loam, silty clay	CH, CL	A-7	0	0	100	100	95-100	90-100	40-65	25-40
	29-50	Silt loam, silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	25-45	10-25
	50-80	Silt loam	CL	A-6	0	0	95-100	95-100	95-100	90-100	25-40	10-20
259B:												
Assumption--	0-16	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	90-100	25-40	8-20
	16-35	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-50	10-30
	35-60	Clay loam, silty clay loam, clay	CL	A-6, A-7	0	0-5	100	95-100	90-100	70-90	35-50	20-35
	60-80	Clay loam, silty clay loam, clay	CL	A-6, A-7	0	0-5	100	95-100	90-100	70-90	35-50	20-35
259B2:												
Assumption--	0-8	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	90-100	25-40	8-20
	8-35	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-50	10-30
	35-60	Clay loam, silty clay loam, clay	CL	A-6, A-7	0	0-5	100	95-100	90-100	70-90	35-50	20-35
259C2:												
Assumption--	0-8	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	90-100	25-40	8-20
	8-24	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-50	10-30
	24-60	Clay loam, silty clay loam, clay	CL	A-6, A-7	0	0-5	100	95-100	90-100	70-90	35-50	20-35

Table 19.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
279A:												
Rozetta-----	0-4	Silt loam	CL	A-6, A-4	0	0	100	100	95-100	95-100	24-35	8-15
	4-11	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	95-100	20-30	5-15
	11-50	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	95-100	95-100	35-50	15-30
	50-60	Silt loam, silty clay loam	CL	A-6, A-4	0	0	100	100	95-100	85-100	25-40	7-20
279B:												
Rozetta-----	0-7	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	24-35	8-15
	7-11	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	95-100	20-30	5-15
	11-55	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-50	15-30
	55-60	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	100	95-100	85-100	25-40	7-20
279C2:												
Rozetta-----	0-8	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	24-35	8-15
	8-56	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-50	15-30
	56-80	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	100	95-100	85-100	25-40	7-20
280B:												
Fayette-----	0-9	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	9-39	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	100	95-100	35-45	15-25
	39-60	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20
280C2:												
Fayette-----	0-8	Silt loam	CL	A-6, A-7	0	0	100	100	100	95-100	30-45	10-25
	8-64	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	100	95-100	35-45	15-25
	64-80	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20
470B:												
Keller------	0-10	Silt loam	ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	30-40	5-15
	10-31	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	90-100	35-50	10-25
	31-60	Silty clay loam, clay loam, clay	CH, CL	A-6, A-7	0	0-5	95-100	90-100	80-95	75-90	35-55	15-30
477B:												
Winfield----	0-9	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	30-35	10-15
	9-13	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-20
	13-62	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	15-25
	62-80	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-35	10-15
477C2:												
Winfield----	0-6	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	30-35	10-15
	6-50	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	15-20
	50-80	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-35	10-15

Table 19.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
477C3:												
Winfield----	0-3	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-45	15-20
	3-50	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	15-20
	50-80	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-35	10-15
477D3:												
Winfield----	0-5	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-45	15-20
	5-48	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	15-20
	48-80	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-35	10-15
515B3, 515C3, 515D3:												
Bunkum-----	0-8	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-20
	8-40	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-20
	40-58	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	95-100	30-35	10-15
	58-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	30-40	10-15
517A, 515B:												
Marine------	0-9	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	30-35	10-15
	9-17	Silt loam, silt	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	95-100	25-35	5-15
	17-43	Silty clay loam, silty clay	CH	A-7	0	0	100	100	95-100	95-100	50-65	30-40
	43-62	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	30-50	15-30
	62-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	35-45	15-25
536:												
Dumps.												
570D2:												
Martinsville	0-10	Sandy loam	SM, SC-SM	A-4, A-2-4	0	0	100	85-100	55-85	30-50	10-20	NP-6
	10-34	Clay loam, silty clay loam, sandy clay loam	CL, SC, ML, SC-SM	A-4, A-6	0	0	100	100	70-90	40-75	25-40	9-17
	34-44	Fine sandy loam, loam, silt loam	SC-SM, SC, CL-ML, CL	A-4, A-6, A-2-4, A-2-6	0	0	100	100	70-90	30-70	25-35	6-12
	44-60	Stratified sand to silt loam	SM, SC, ML	A-2-4, A-4	0	0	100	100	60-90	20-70	15-30	2-10
582B:												
Homen-------	0-9	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	95-100	30-35	10-15
	9-15	Silt loam	CL, ML	A-4, A-6	0	0	100	100	98-100	95-100	25-35	10-15
	15-58	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-20
	58-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	30-40	10-20

Table 19.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
582C2:												
Homen-------	0-7	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	95-100	30-35	10-15
	7-50	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-20
	50-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	30-40	10-20
587B:												
Terril------	0-30	Loam, clay loam	CL	A-6	0	0-5	95-100	95-100	70-90	60-80	30-40	10-20
	30-68	Loam, clay loam	CL, ML	A-6, A-7	0	0-5	95-100	90-100	70-90	60-80	30-45	10-25
	68-80	Clay loam, loam, sandy loam	SC-SM, CL, CL-ML, SC	A-6, A-4	0	0-5	95-100	90-100	65-95	35-85	20-40	5-20
657A:												
Burksville--	0-7	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	85-100	25-35	5-15
	7-13	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-35	5-15
	13-54	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-45	15-20
	54-80	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	30-45	10-20
660C2:												
Coatsburg---	0-7	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-15
	7-80	Silty clay, clay, silty clay loam	CH	A-7	0	0	100	95-100	75-90	65-85	50-70	35-55
705B:												
Buckhart----	0-15	Silt loam	CL, ML	A-6, A-7	0	0	100	100	100	95-100	35-45	10-20
	15-67	Silty clay loam, silt loam	CL	A-7	0	0	100	100	100	95-100	40-50	15-25
	67-80	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	11-20
713G:												
Judyville---	0-4	Loam, channery loam	CL, CL-ML, ML	A-4	0	0-10	80-100	75-100	65-85	50-75	25-36	5-10
	4-20	Very channery loam, very channery silt loam, extremely channery fine sandy loam	GC, GM, SC, SM	A-1, A-2, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	20-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
802B, 802E:												
Orthents----	0-6	Loam	CL	A-6	0-1	0-5	95-100	90-100	85-95	60-90	20-40	10-20
	6-60	Loam, silt loam, clay loam	CL	A-6	0-1	0-5	95-100	90-100	85-95	60-90	20-40	10-20
830:												
Landfills.												

Table 19.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
880B2:												
Coulterville	0-7	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	10-15
	7-15	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-100	90-100	30-45	15-20
	15-68	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-100	90-100	30-45	10-20
	68-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	30-40	10-20
Darmstadt---	0-11	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	75-100	25-35	5-15
	11-21	Silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	35-45	15-20
	21-39	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-100	90-100	30-45	10-20
	39-62	Silt loam, silty clay loam	CL	A-6, A-4	0	0	100	100	95-100	95-100	30-40	10-20
	62-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	30-40	10-20
882B:												
Oconee------	0-8	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	35-45	15-25
	8-16	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	35-45	15-25
	16-47	Silty clay loam, silty clay	CH	A-7	0	0	100	100	95-100	90-100	50-60	30-35
	47-65	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-50	15-30
	65-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	35-45	15-25
Coulterville	0-7	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	10-15
	7-15	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-100	90-100	30-45	15-20
	15-68	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-100	90-100	30-45	10-20
	68-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	30-40	10-20

Table 19.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification Unified	Classification AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
882B:												
Darmstadt---	0-11	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	75-100	25-35	5-15
	11-21	Silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	35-45	15-20
	21-39	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-100	90-100	30-45	10-20
	39-62	Silt loam, silty clay loam	CL	A-6, A-4	0	0	100	100	95-100	90-100	30-40	10-20
	62-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	95-100	90-100	80-100	30-40	10-20
885A:												
Virden------	0-15	Silt loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	15-25
	15-74	Silty clay loam, silty clay, silt loam	CH, CL	A-7-6	0	0	100	100	95-100	95-100	40-60	20-35
	74-80	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-50	15-25
Fosterburg--	0-13	Silt loam	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-25
	13-41	Silty clay loam, silty clay	CH	A-7-6	0	0	100	100	98-100	95-100	50-60	30-35
	41-71	Silty clay loam, silt loam	CH, CL	A-7-6	0	0	100	100	98-100	95-100	40-55	20-35
	71-80	Silt loam	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-25
894A:												
Herrick-----	0-13	Silt loam	CL, ML	A-7-6, A-6	0	0	100	100	95-100	90-100	35-45	15-25
	13-39	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	95-100	90-100	49-60	30-35
	39-60	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	40-55	20-35
	60-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	35-45	15-25
Biddle------	0-16	Silt loam	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-25
	16-36	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	98-100	95-100	49-60	30-35
	36-76	Silty clay loam, silt loam	CH, CL	A-6, A-7-6	0	0	100	100	98-100	95-100	40-55	20-30
	76-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	35-50	15-30

Table 19.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
894A:												
Piasa-------	0-8	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	35-45	15-25
	8-12	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	35-45	15-25
	12-48	Silty clay loam, silty clay	CH	A-7	0	0	100	100	95-100	95-100	50-60	30-35
	48-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	35-50	15-30
897C2:												
Bunkum------	0-8	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	95-100	25-40	5-15
	8-40	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-20
	40-58	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	95-100	25-35	9-15
	58-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	30-50	10-20
Atlas-------	0-9	Silt loam	CL-ML, CL	A-6, A-4	0	0	100	100	95-100	75-100	25-35	5-15
	9-31	Silty clay loam, clay, clay loam	CH	A-7	0	0	100	95-100	95-100	75-95	50-70	30-45
	31-51	Silty clay loam, silty clay, clay loam, clay	CH	A-7	0	0	100	95-100	95-100	75-95	50-70	30-45
	51-80	Silty clay, clay loam, loam	CH, CL	A-6, A-7	0	0	95-100	90-98	90-98	65-95	35-55	20-30
897C3:												
Bunkum------	0-8	Silty clay loam	CL	A-4, A-6, A-7-6	0	0	100	100	98-100	95-100	30-45	9-20
	8-40	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-20
	40-58	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	95-100	25-35	9-15
	58-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	30-50	10-20
Atlas-------	0-9	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	75-100	40-60	25-40
	9-31	Silty clay loam, clay, clay loam	CH	A-7	0	0	100	95-100	95-100	75-95	50-70	30-45
	31-51	Silty clay loam, clay, clay loam, silty clay	CH	A-7	0	0	100	95-100	95-100	75-95	50-70	30-45
	51-80	Silty clay, clay loam, loam	CH, CL	A-6, A-7	0	0	95-100	90-98	90-98	65-95	35-55	20-30

Table 19.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
897D2:												
Bunkum------	0-8	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	95-100	25-40	5-15
	8-40	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-20
	40-58	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	95-100	25-35	9-15
	58-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	30-50	10-20
Atlas-------	0-9	Silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	95-100	75-100	25-35	5-15
	9-31	Silty clay loam, clay, clay loam	CH	A-7	0	0	100	95-100	95-100	75-95	50-70	30-45
	31-51	Silty clay loam, clay, clay loam, silty clay	CH	A-7	0	0	100	95-100	95-100	75-95	50-70	30-45
	51-80	Silty clay, clay loam, loam	CH, CL	A-6, A-7	0	0	95-100	90-98	90-98	65-95	35-55	20-30
897D3:												
Bunkum------	0-8	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-20
	8-40	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-20
	40-58	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	95-100	30-35	10-15
	58-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	30-50	10-20
Atlas-------	0-9	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	75-100	45-55	25-35
	9-31	Silty clay loam, silty clay, clay loam	CH	A-7	0	0	100	95-100	95-100	75-95	50-60	30-35
	31-51	Silty clay, clay, silty clay loam, clay loam	CH	A-7	0	0	100	95-100	95-100	75-95	45-65	25-40
	51-80	Silty clay, clay loam, loam	CH, CL	A-6, A-7	0	0	95-100	90-98	90-98	65-95	40-60	20-35
914C3:												
Atlas-------	0-9	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	75-100	45-55	25-35
	9-31	Silty clay loam, silty clay, clay loam	CH	A-7	0	0	100	95-100	95-100	75-95	50-60	30-35
	31-51	Silty clay, clay, silty clay loam, clay loam	CH	A-7	0	0	100	95-100	95-100	75-95	45-65	25-40
	51-80	Silty clay, clay loam, loam	CH, CL	A-6, A-7	0	0	95-100	90-98	90-98	65-95	40-60	20-35

Table 19.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
914C3:												
Grantfork---	0-5	Silty clay loam	CL	A-7, A-6	0	0	100	95-100	85-95	80-90	35-45	15-20
	5-37	Silty clay loam, silt loam, loam, clay loam	CL	A-7, A-6	0	0	100	90-100	80-90	70-80	30-45	10-20
	37-67	Clay loam, loam	CL	A-7, A-6	0	0-5	95-100	85-95	70-80	55-75	30-45	10-20
	67-80	Clay, clay loam, silty clay loam, loam	CH, CL	A-6, A-7	0	0-5	95-100	85-95	70-80	55-75	35-55	15-30
993A:												
Cowden------	0-8	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	35-45	15-25
	8-19	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	35-45	15-25
	19-50	Silty clay loam, silty clay	CH	A-7-6	0	0	100	100	95-100	95-100	50-60	30-35
	50-58	Silt loam, silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	95-100	35-45	15-25
	58-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	35-45	15-25
Piasa-------	0-8	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	35-45	15-25
	8-12	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	35-45	15-25
	12-48	Silty clay loam, silty clay	CH	A-7	0	0	100	100	95-100	95-100	50-60	30-35
	48-80	Silt loam, loam, silty clay loam, clay loam	ML, CL	A-6	0	0	100	100	90-100	80-100	35-45	15-25
3076A:												
Otter-------	0-43	Silt loam	CL	A-4, A-6, A-7	0	0	100	95-100	90-100	80-100	25-45	7-20
	43-50	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	95-100	90-100	80-100	30-45	10-20
	50-60	Silt loam, sandy loam, silty clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6, A-7	0	0	90-100	80-100	55-95	45-85	25-45	5-20
3107A:												
Sawmill-----	0-32	Silty clay loam	CL, ML	A-7-6	0	0	100	97-100	95-100	85-100	40-46	16-21
	32-58	Silty clay loam	CL, ML	A-7-6, A-6	0	0	100	97-100	85-100	80-95	37-46	16-22
	58-65	Silty clay loam, clay loam, silt loam	CL, ML	A-7-6, A-6	0	0	100	97-100	85-100	80-95	37-46	16-22
3304A:												
Landes------	0-14	Fine sandy loam	SC, SC-SM, SM	A-2-4, A-4	0	0	100	70-100	70-95	20-50	0-25	NP-10
	14-32	Loam, very fine sandy loam, fine sandy loam	SC-SM, SM, CL-ML, SC	A-2-4, A-4	0	0	100	85-100	70-100	15-60	0-25	NP-10
	32-60	Stratified sand to loamy sand	SC, SC-SM, SM, SP-SM	A-2-4, A-4	0	0	100	85-100	70-85	10-50	0-30	NP-10

Table 19.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
3333A:												
Wakeland----	0-8	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	80-100	20-30	5-10
	8-68	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	80-100	20-30	5-10
	68-80	Silt loam, loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	60-100	20-30	5-10
3428A:												
Coffeen-----	0-10	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-35	10-15
	10-47	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	80-95	25-30	5-10
	47-60	Stratified silt loam to fine sandy loam	CL, ML, SC, SM	A-2, A-4	0	0	100	90-100	85-100	30-85	0-25	NP-10
3451A:												
Lawson------	0-14	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	85-100	20-35	5-15
	14-33	Silt loam, silty clay loam	CL, CL-ML	A-4	0	0	100	100	90-100	85-100	20-40	5-20
	33-80	Silty clay loam, silt loam	CL	A-6, A-4	0	0	100	100	90-100	60-100	30-40	10-20
9017A:												
Keomah------	0-9	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	9-16	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	25-35	4-15
	16-49	Silty clay, silty clay loam	CH	A-7	0	0	100	100	100	95-100	45-60	30-45
	49-80	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	100	95-100	35-50	15-30
9257A:												
Clarksdale--	0-10	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-40	10-20
	10-16	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	90-100	20-35	8-18
	16-46	Silty clay loam, silty clay	CH, CL	A-7	0	0	100	100	95-100	90-100	40-65	25-40
	46-80	Silt loam, silty clay loam	CL	A-6	0	0	95-100	95-100	95-100	90-100	25-40	10-25
9279B:												
Rozetta-----	0-9	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	24-35	8-15
	9-66	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-50	15-30
	66-76	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	100	95-100	85-100	25-40	7-20

Table 20.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
6B2:														
Fishhook-----	0-7	0-7	66-80	20-27	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	4	6	48
	7-25	0-7	58-73	27-35	1.40-1.60	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.37	.37			
	25-49	15-35	20-50	35-45	1.55-1.75	0.06-0.6	0.09-0.16	6.0-8.9	0.0-1.0	.28	.28			
	49-80	15-35	20-50	35-45	1.55-1.75	0.06-0.6	0.09-0.16	6.0-8.9	0.0-1.0	.28	.28			
6C2:														
Fishhook-----	0-6	0-7	66-80	20-27	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	4	6	48
	6-27	0-7	58-73	27-35	1.40-1.60	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.37	.37			
	27-58	15-35	20-50	35-45	1.55-1.75	0.06-0.6	0.09-0.16	6.0-8.9	0.0-1.0	.28	.28			
	58-80	15-35	20-50	35-45	1.55-1.75	0.06-0.6	0.09-0.16	6.0-8.9	0.0-1.0	.28	.28			
8D2:														
Hickory------	0-6	15-45	30-66	19-25	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	1.0-2.0	.32	.32	5	6	48
	6-47	15-45	20-58	27-35	1.45-1.65	0.6-2	0.15-0.19	3.0-5.9	0.0-0.5	.28	.32			
	47-60	30-45	23-55	15-32	1.50-1.70	0.6-2	0.11-0.19	0.0-2.9	0.0-0.5	.28	.32			
8D3:														
Hickory------	0-8	20-40	30-50	27-35	1.40-1.65	0.6-2	0.17-0.19	3.0-5.9	0.5-1.0	.28	.32	4	6	48
	8-46	20-45	30-50	24-35	1.45-1.65	0.6-2	0.15-0.19	3.0-5.9	0.1-0.5	.28	.32			
	46-58	25-49	28-50	15-32	1.50-1.70	0.6-2	0.11-0.19	0.0-2.9	0.1-0.5	.28	.32			
	58-80	30-55	25-50	15-30	1.50-1.75	0.6-2	0.10-0.15	0.0-2.9	0.1-0.5	.28	.32			
8F:														
Hickory------	0-4	10-30	45-70	18-25	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	4-12	15-45	33-70	15-22	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.1-0.5	.37	.37			
	12-46	15-45	30-50	24-35	1.45-1.65	0.6-2	0.15-0.19	3.0-5.9	0.1-0.5	.28	.32			
	46-58	25-49	28-50	15-32	1.50-1.70	0.6-2	0.11-0.19	0.0-2.9	0.1-0.5	.28	.32			
	58-80	30-55	25-50	15-30	1.50-1.75	0.6-2	0.10-0.15	0.0-2.9	0.1-0.5	.28	.32			
8F2:														
Hickory------	0-4	15-45	30-66	19-25	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	1.0-2.0	.32	.32	5	6	48
	4-37	15-45	20-61	24-35	1.45-1.65	0.6-2	0.15-0.19	3.0-5.9	0.0-0.5	.28	.32			
	37-60	30-45	23-55	15-32	1.50-1.70	0.6-2	0.11-0.19	0.0-2.9	0.0-0.5	.28	.32			
8G:														
Hickory------	0-4	15-45	30-66	19-25	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	4-12	15-45	33-70	15-22	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.37	.37			
	12-40	15-45	20-58	24-35	1.45-1.65	0.6-2	0.15-0.19	3.0-5.9	0.0-0.5	.28	.32			
	40-58	30-45	23-55	15-32	1.50-1.70	0.6-2	0.11-0.19	0.0-2.9	0.0-0.5	.28	.32			
	58-63	30-45	25-55	15-30	1.50-1.75	0.6-2	0.10-0.15	0.0-2.9	0.0-0.5	.28	.32			
16A:														
Rushville----	0-7	0-7	66-85	15-27	1.25-1.45	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	7-13	0-7	71-90	10-22	1.30-1.50	0.06-0.2	0.15-0.20	0.0-2.9	0.0-1.0	.55	.55			
	13-32	0-7	45-65	35-48	1.30-1.50	0.01-0.06	0.09-0.20	6.0-8.9	0.0-0.5	.37	.37			
	32-50	0-7	51-70	30-42	1.40-1.60	0.01-0.2	0.11-0.20	6.0-8.9	0.0-0.5	.37	.37			
	50-80	0-7	63-82	18-30	1.40-1.55	0.06-0.6	0.16-0.21	0.0-2.9	0.0-0.5	.49	.49			
17A:														
Keomah-------	0-11	0-7	67-84	16-26	1.35-1.45	0.6-2	0.19-0.24	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	11-18	0-7	67-84	16-26	1.40-1.60	0.2-0.6	0.17-0.21	0.0-2.9	0.1-1.0	.49	.49			
	18-33	0-7	51-65	35-42	1.30-1.40	0.06-0.2	0.15-0.19	6.0-8.9	0.1-0.5	.37	.37			
	33-51	0-7	58-73	27-35	1.35-1.45	0.2-0.6	0.16-0.20	3.0-5.9	0.1-0.5	.37	.37			
	51-89	0-7	66-85	15-27	1.40-1.60	0.6-2	0.19-0.22	0.0-2.9	0.0-0.2	.49	.49			

Table 20.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
31A:														
Pierron------	0-8	1-7	71-85	12-25	1.25-1.45	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	3	5	56
	8-20	1-7	70-88	10-22	1.30-1.50	0.06-0.2	0.15-0.20	0.0-2.9	0.1-0.5	.55	.55			
	20-36	1-7	48-64	35-45	1.35-1.60	0.01-0.06	0.10-0.18	6.0-8.9	0.1-0.5	.37	.37			
	36-66	1-7	54-70	27-42	1.35-1.60	0.01-0.06	0.12-0.18	6.0-8.9	0.1-0.5	.37	.37			
	66-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.17-0.22	0.0-2.9	0.1-0.5	.37	.37			
43A:														
Ipava--------	0-10	2-7	66-83	15-27	1.25-1.45	0.6-2	0.22-0.24	0.0-2.9	3.5-5.0	.28	.28	5	6	48
	10-18	2-7	58-71	27-35	1.20-1.40	0.6-2	0.18-0.21	3.0-5.9	1.5-3.5	.24	.24			
	18-31	2-7	48-63	35-45	1.30-1.50	0.2-0.6	0.15-0.18	6.0-8.9	0.5-1.5	.37	.37			
	31-50	2-7	58-71	27-35	1.35-1.55	0.6-2	0.18-0.21	3.0-5.9	0.1-0.5	.37	.37			
	50-60	2-7	66-83	15-27	1.40-1.60	0.6-2	0.19-0.26	0.0-2.9	0.0-0.5	.49	.49			
46A:														
Herrick------	0-13	1-7	64-78	20-27	1.15-1.30	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28	5	6	48
	13-39	1-7	51-63	35-42	1.20-1.40	0.2-0.6	0.12-0.17	6.0-8.9	0.2-1.0	.37	.37			
	39-60	1-7	55-73	25-40	1.20-1.40	0.2-0.6	0.16-0.20	3.0-5.9	0.1-0.5	.37	.37			
	60-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.17-0.22	0.0-2.9	0.1-0.3	.37	.37			
50A:														
Virden-------	0-16	0-7	58-73	27-35	1.20-1.40	0.6-2	0.21-0.24	3.0-5.9	3.0-6.0	.24	.24	5	7	38
	16-49	0-7	51-65	35-42	1.20-1.45	0.2-0.6	0.11-0.20	6.0-8.9	0.0-2.0	.37	.37			
	49-60	0-7	60-75	25-33	1.25-1.55	0.2-0.6	0.18-0.22	3.0-5.9	0.0-0.5	.43	.43			
112A:														
Cowden-------	0-8	1-7	68-80	17-27	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	2.0-3.0	.37	.37	3	6	48
	8-19	1-7	68-80	17-27	1.25-1.45	0.06-0.2	0.18-0.20	0.0-2.9	0.1-0.5	.49	.49			
	19-50	1-7	50-63	35-42	1.35-1.60	0.06-0.2	0.12-0.20	6.0-8.9	0.2-0.8	.37	.37			
	50-58	1-7	65-79	20-30	1.40-1.60	0.2-0.6	0.17-0.22	3.0-5.9	0.1-0.5	.49	.49			
	58-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.17-0.22	0.0-2.9	0.1-0.5	.37	.37			
113A, 113B:														
Oconee-------	0-8	1-7	66-78	20-27	1.20-1.30	0.6-2	0.22-0.24	3.0-5.9	2.0-3.0	.37	.37	5	6	48
	8-16	1-7	66-80	18-27	1.30-1.45	0.06-0.2	0.20-0.22	3.0-5.9	0.1-0.5	.49	.49			
	16-47	1-7	51-63	35-42	1.30-1.50	0.06-0.2	0.11-0.17	6.0-8.9	0.2-0.8	.37	.37			
	47-65	1-7	58-78	20-35	1.40-1.60	0.06-0.2	0.16-0.21	3.0-5.9	0.2-0.5	.37	.37			
	65-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.17-0.22	0.0-2.9	0.1-0.3	.37	.37			
119B2, 119C2:														
Elco---------	0-8	0-7	66-80	20-27	1.20-1.35	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	8-31	0-7	58-77	23-35	1.25-1.45	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.37	.37			
	31-60	15-35	20-60	25-45	1.45-1.70	0.06-0.6	0.14-0.20	6.0-8.9	0.0-0.2	.28	.28			
119C3:														
Elco---------	0-5	1-7	58-72	27-35	1.20-1.35	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.37	.37	4	7	38
	5-33	1-7	58-72	25-35	1.25-1.45	0.6-2	0.18-0.21	3.0-5.9	0.1-0.5	.37	.37			
	33-80	10-35	20-60	20-45	1.40-1.60	0.06-0.6	0.16-0.20	6.0-8.9	0.1-0.3	.28	.28			
119D2:														
Elco---------	0-6	0-7	66-80	20-27	1.20-1.35	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	6-28	0-7	58-77	23-35	1.25-1.45	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.37	.37			
	28-60	15-35	20-60	25-45	1.45-1.70	0.06-0.6	0.14-0.20	6.0-8.9	0.0-0.2	.28	.28			
119D3:														
Elco---------	0-5	1-7	58-72	27-35	1.20-1.35	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.37	.37	4	7	38
	5-33	1-7	58-72	25-35	1.25-1.45	0.6-2	0.18-0.21	3.0-5.9	0.1-0.5	.37	.37			
	33-80	10-35	20-60	20-45	1.40-1.60	0.06-0.6	0.16-0.20	6.0-8.9	0.1-0.3	.28	.28			

Table 20.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Kf	T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
127B:														
Harrison-----	0-10	0-5	68-80	20-27	1.15-1.30	0.6-2	0.22-0.24	0.0-2.9	3.0-4.0	.28	.28	5	6	48
	10-45	0-5	60-75	25-35	1.25-1.40	0.6-2	0.18-0.22	3.0-5.9	0.2-1.0	.37	.37			
	45-65	5-30	45-75	20-35	1.30-1.45	0.6-2	0.14-0.20	3.0-5.9	0.0-0.2	.37	.37			
	65-80	5-30	30-65	30-50	1.50-1.70	0.06-0.2	0.10-0.19	6.0-8.9	0.0-0.2	.37	.37			
134C2:														
Camden-------	0-7	2-7	66-83	15-27	1.35-1.55	0.6-2	0.19-0.24	0.0-2.9	1.0-2.5	.43	.43	5	6	48
	7-34	2-7	58-71	25-35	1.35-1.55	0.6-2	0.18-0.21	3.0-5.9	0.1-0.5	.37	.37			
	34-43	30-50	28-48	22-30	1.45-1.65	0.6-2	0.11-0.14	0.0-2.9	0.0-0.5	.32	.32			
	43-80	65-80	10-25	5-15	1.45-1.65	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.28	.28			
250D:														
Velma--------	0-16	15-45	28-65	20-27	1.30-1.50	0.6-2	0.20-0.24	0.0-2.9	3.0-4.0	.24	.24	5	6	48
	16-54	15-45	20-60	25-35	1.45-1.65	0.6-2	0.15-0.19	3.0-5.9	0.2-1.0	.28	.32			
	54-80	30-45	27-50	18-30	1.50-1.70	0.6-2	0.06-0.09	0.0-2.9	0.2-0.5	.28	.32			
257A:														
Clarksdale---	0-8	0-7	66-80	20-27	1.30-1.50	0.6-2	0.22-0.25	3.0-5.9	2.0-3.0	.37	.37	5	6	48
	8-16	0-7	66-85	15-27	1.25-1.50	0.2-0.6	0.20-0.22	0.0-2.9	0.0-1.0	.43	.43			
	16-47	0-7	48-65	35-45	1.30-1.50	0.2-0.6	0.11-0.20	6.0-8.9	0.0-0.5	.37	.37			
	47-67	0-7	63-80	20-30	1.40-1.60	0.6-2	0.20-0.22	3.0-5.9	0.0-0.5	.43	.43			
	67-80	0-7	66-82	18-27	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
257B:														
Clarksdale---	0-9	0-7	66-80	20-27	1.30-1.50	0.6-2	0.22-0.25	3.0-5.9	2.0-3.0	.37	.37	5	6	48
	9-29	0-7	48-65	35-45	1.30-1.50	0.2-0.6	0.11-0.20	6.0-8.9	0.0-0.5	.37	.37			
	29-50	0-7	63-80	20-30	1.40-1.60	0.6-2	0.20-0.22	3.0-5.9	0.0-0.5	.43	.43			
	50-80	0-7	66-82	18-27	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
259B:														
Assumption---	0-16	0-7	66-80	20-27	1.25-1.45	0.6-2	0.23-0.25	0.0-2.9	3.0-4.0	.28	.28	5	6	48
	16-35	0-7	58-75	25-35	1.20-1.40	0.6-2	0.18-0.22	3.0-5.9	0.0-1.0	.43	.43			
	35-60	20-30	25-50	30-45	1.45-1.65	0.06-0.6	0.14-0.20	6.0-8.9	0.0-0.5	.43	.43			
	60-80	20-30	25-50	30-45	1.45-1.65	0.06-0.6	0.14-0.20	6.0-8.9	0.0-0.5	.43	.43			
259B2:														
Assumption---	0-8	0-7	66-80	20-27	1.25-1.45	0.6-2	0.23-0.25	0.0-2.9	2.0-3.0	.37	.37	5	6	48
	8-35	0-7	58-75	25-35	1.20-1.40	0.6-2	0.18-0.22	3.0-5.9	0.0-1.0	.37	.37			
	35-60	15-35	25-50	30-45	1.45-1.65	0.06-0.6	0.14-0.20	6.0-8.9	0.0-0.5	.28	.28			
259C2:														
Assumption---	0-8	0-7	66-80	20-27	1.25-1.45	0.6-2	0.23-0.25	0.0-2.9	2.0-3.0	.37	.37	5	6	48
	8-24	0-7	58-75	25-35	1.20-1.40	0.6-2	0.18-0.22	3.0-5.9	0.0-1.0	.37	.37			
	24-60	15-35	25-50	30-45	1.45-1.65	0.06-0.6	0.14-0.20	6.0-8.9	0.0-0.5	.28	.28			
279A:														
Rozetta------	0-4	0-7	66-85	15-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	4-11	0-7	66-88	12-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	0.2-0.5	.49	.49			
	11-50	0-7	58-73	27-35	1.35-1.55	0.6-2	0.18-0.22	3.0-5.9	0.2-0.5	.37	.37			
	50-60	0-7	63-80	20-30	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.2-0.5	.49	.49			
279B:														
Rozetta------	0-7	0-7	66-85	15-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	7-11	0-7	66-88	12-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	0.1-1.0	.49	.49			
	11-55	0-7	58-73	27-35	1.35-1.55	0.6-2	0.18-0.22	3.0-5.9	0.0-0.5	.37	.37			
	55-60	0-7	63-80	20-30	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			

Table 20.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
279C2:														
Rozetta------	0-8	0-7	66-85	15-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	8-56	0-7	58-73	27-35	1.35-1.55	0.6-2	0.18-0.22	3.0-5.9	0.2-0.5	.37	.37			
	56-80	0-7	63-80	20-30	1.40-1.60	0.6-2	0.18-0.22	0.0-2.9	0.2-0.5	.49	.49			
280B:														
Fayette------	0-9	0-7	66-85	15-27	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	9-39	0-7	58-75	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.37	.37			
	39-60	0-7	67-78	22-26	1.45-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.49	.49			
280C2:														
Fayette------	0-8	0-7	66-75	25-27	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43	5	6	48
	8-64	0-7	58-75	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	64-80	0-7	67-78	22-26	1.45-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.49	.49			
470B:														
Keller-------	0-10	0-7	66-80	20-27	1.30-1.40	0.6-2	0.22-0.24	0.0-2.9	3.0-5.0	.28	.28	4	6	48
	10-31	0-7	58-73	27-35	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.37	.37			
	31-60	15-35	23-55	30-42	1.50-1.70	0.06-0.6	0.10-0.19	6.0-8.9	0.0-0.4	.28	.28			
477B:														
Winfield-----	0-9	1-7	64-78	20-27	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	9-13	1-7	65-75	22-30	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.1-0.5	.49	.49			
	13-62	1-7	62-70	24-35	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.1-0.5	.37	.37			
	62-80	1-7	64-78	20-27	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.1-0.5	.49	.49			
477C2:														
Winfield-----	0-6	1-7	64-78	20-27	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	6-50	1-7	62-70	24-35	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.1-0.5	.37	.37			
	50-80	1-7	64-78	20-27	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.1-0.5	.49	.49			
477C3:														
Winfield-----	0-3	0-7	63-73	27-35	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.37	.37	4	7	38
	3-50	0-7	58-73	24-35	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	50-80	0-7	66-80	20-27	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
477D3:														
Winfield-----	0-5	1-7	60-72	27-35	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.37	.37	4	7	38
	5-48	1-7	62-70	24-35	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.1-0.5	.37	.37			
	48-80	1-7	66-78	20-27	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.1-0.5	.49	.49			
515B3, 515C3, 515D3:														
Bunkum------	0-8	1-7	58-72	27-35	1.25-1.35	0.2-0.6	0.20-0.24	3.0-5.9	0.5-1.0	.37	.37	4	7	38
	8-40	1-7	58-72	25-35	1.25-1.45	0.2-0.6	0.16-0.22	3.0-5.9	0.2-0.8	.37	.37			
	40-58	1-7	68-80	18-27	1.30-1.50	0.2-0.6	0.18-0.22	0.0-2.9	0.2-0.8	.49	.49			
	58-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.17-0.22	0.0-2.9	0.1-0.5	.37	.37			
517A, 517B:														
Marine-------	0-9	1-7	75-85	12-18	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	3	5	56
	9-17	1-7	75-90	8-18	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	0.1-0.5	.49	.49			
	17-43	1-7	45-64	35-48	1.45-1.70	0.06-0.2	0.11-0.18	6.0-8.9	0.2-0.8	.37	.37			
	43-62	1-7	60-80	15-35	1.45-1.65	0.2-0.6	0.18-0.22	3.0-5.9	0.1-0.5	.37	.37			
	62-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.17-0.22	0.0-2.9	0.1-0.3	.37	.37			
536:														
Dumps.														

Table 20.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
570D2:														
Martinsville	0-10	45-65	20-45	10-15	1.35-1.50	2-6	0.13-0.16	0.0-2.9	1.0-2.0	.20	.20	5	3	86
	10-34	20-50	17-60	20-33	1.40-1.60	0.6-2	0.16-0.20	3.0-5.9	0.0-0.5	.32	.32			
	34-44	30-60	15-55	10-25	1.40-1.60	0.6-2	0.12-0.17	0.0-2.9	0.0-0.2	.32	.32			
	44-60	40-90	0-55	5-20	1.50-1.70	0.6-6	0.08-0.17	0.0-2.9	0.0-0.2	.28	.28			
582B:														
Homen--------	0-9	1-7	66-80	18-27	1.20-1.65	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	9-15	1-7	66-80	15-27	1.35-1.65	0.6-2	0.20-0.22	0.0-2.9	0.1-0.5	.49	.49			
	15-58	1-7	58-75	24-35	1.40-1.70	0.2-0.6	0.18-0.22	3.0-5.9	0.1-0.5	.37	.37			
	58-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.17-0.22	0.0-2.9	0.1-0.3	.37	.37			
582C2:														
Homen--------	0-7	1-7	66-80	18-27	1.20-1.65	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	7-50	1-7	58-75	24-35	1.40-1.70	0.2-0.6	0.18-0.22	3.0-5.9	0.1-0.5	.37	.37			
	50-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.17-0.22	0.0-2.9	0.1-0.3	.37	.37			
587B:														
Terril-------	0-30	25-50	22-57	18-28	1.35-1.40	0.6-2	0.20-0.22	0.0-2.9	3.0-5.0	.32	.32	5	6	48
	30-68	25-50	20-51	24-30	1.40-1.45	0.6-2	0.17-0.19	0.0-2.9	2.0-3.0	.32	.32			
	68-80	25-60	20-60	15-30	1.45-1.70	0.6-2	0.16-0.18	0.0-2.9	0.0-1.0	.32	.32			
657A:														
Burksville---	0-7	1-7	65-85	12-27	1.35-1.50	0.2-0.6	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	4	6	48
	7-13	1-7	65-85	12-25	1.40-1.55	0.06-0.2	0.20-0.22	0.0-2.9	0.1-0.5	.55	.55			
	13-54	1-7	58-73	25-35	1.45-1.65	0.06-0.2	0.11-0.14	3.0-5.9	0.2-0.8	.37	.37			
	54-80	1-7	60-80	18-35	1.55-1.75	0.06-0.2	0.10-0.15	3.0-5.9	0.1-0.5	.49	.49			
660C2:														
Coatsburg----	0-7	5-30	43-75	20-27	1.20-1.40	0.2-0.6	0.22-0.24	3.0-5.9	3.0-5.0	.28	.28	3	6	48
	7-80	15-35	20-50	35-45	1.50-1.70	0.01-0.06	0.09-0.13	6.0-8.9	0.0-1.0	.28	.28			
705B:														
Buckhart-----	0-15	0-7	67-80	20-26	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28	5	6	48
	15-67	0-7	58-75	25-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.2-1.0	.37	.37			
	67-80	0-7	66-82	18-27	1.35-1.45	0.6-2	0.20-0.22	3.0-5.9	0.0-0.5	.49	.49			
713G:														
Judyville----	0-4	40-77	0-55	5-23	1.20-1.50	0.6-6	0.12-0.17	0.0-2.9	2.0-4.0	.32	.32	3	5	56
	4-20	40-68	0-55	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.43	.49			
	20-60	---	---	---	---	0.2-20	0.00-0.00	---	---	---	---			
802B:														
Orthents-----	0-6	30-45	25-48	22-30	1.70-1.75	0.2-0.6	0.18-0.22	3.0-5.9	0.5-2.0	.43	.43	5	6	48
	6-60	30-45	25-48	22-30	1.70-1.80	0.2-0.6	0.16-0.20	3.0-5.9	0.2-1.0	.43	.43			
802E:														
Orthents-----	0-6	30-45	25-48	22-30	1.70-1.75	0.2-0.6	0.18-0.22	3.0-5.9	0.5-2.0	.43	.43	5	4	86
	6-60	30-45	25-48	22-30	1.70-1.80	0.2-0.6	0.16-0.20	3.0-5.9	0.2-1.0	.43	.43			
830:														
Landfills.														
880B2:														
Coulterville	0-7	1-7	70-80	15-27	1.40-1.60	0.2-0.6	0.21-0.24	0.0-2.9	1.0-2.0	.43	.43	4	6	48
	7-15	1-7	58-75	22-35	1.40-1.60	0.06-0.2	0.14-0.24	3.0-5.9	0.2-0.8	.37	.37			
	15-68	1-7	60-80	18-35	1.45-1.60	0.06-0.2	0.10-0.15	3.0-5.9	0.2-0.8	.49	.49			
	68-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.05-0.10	0.0-2.9	0.1-0.5	.37	.37			

Table 20.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
880B2:														
Darmstadt----	0-11	1-7	72-80	12-27	1.30-1.50	0.06-0.2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	3	6	48
	11-21	1-7	58-70	27-35	1.40-1.65	0.06-0.2	0.11-0.20	3.0-5.9	0.2-0.8	.37	.37			
	21-39	1-7	60-75	20-35	1.40-1.65	0.01-0.06	0.11-0.20	3.0-5.9	0.2-0.8	.37	.37			
	39-62	1-7	65-80	20-30	1.40-1.60	0.06-0.2	0.10-0.15	3.0-5.9	0.1-0.5	.49	.49			
	62-80	5-30	45-70	20-30	1.40-1.60	0.06-0.2	0.10-0.15	0.0-2.9	0.1-0.3	.37	.37			
882B:														
Oconee-------	0-8	1-7	66-78	20-27	1.20-1.30	0.6-2	0.22-0.24	3.0-5.9	2.0-3.0	.37	.37	5	6	48
	8-16	1-7	66-80	18-27	1.30-1.45	0.06-0.2	0.20-0.22	3.0-5.9	0.1-0.5	.49	.49			
	16-47	1-7	51-63	35-42	1.30-1.50	0.06-0.2	0.11-0.17	6.0-8.9	0.2-0.8	.37	.37			
	47-65	1-7	58-78	20-35	1.40-1.60	0.06-0.2	0.16-0.21	3.0-5.9	0.1-0.5	.37	.37			
	65-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.17-0.22	0.0-2.9	0.1-0.3	.37	.37			
Coulterville	0-7	1-7	70-80	15-27	1.40-1.60	0.2-0.6	0.21-0.24	0.0-2.9	1.0-2.0	.43	.43	4	6	48
	7-15	1-7	60-75	22-35	1.40-1.60	0.06-0.2	0.14-0.24	3.0-5.9	0.2-0.8	.37	.37			
	15-68	1-7	60-80	18-35	1.45-1.60	0.06-0.2	0.10-0.15	3.0-5.9	0.2-0.8	.49	.49			
	68-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.05-0.10	0.0-2.9	0.1-0.5	.37	.37			
Darmstadt----	0-11	1-7	72-80	12-27	1.30-1.50	0.06-0.2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	3	6	48
	11-21	1-7	58-70	27-35	1.40-1.65	0.06-0.2	0.11-0.20	3.0-5.9	0.2-0.8	.37	.37			
	21-39	1-7	60-75	20-35	1.40-1.65	0.01-0.06	0.11-0.20	3.0-5.9	0.2-0.8	.37	.37			
	39-62	1-7	65-80	20-30	1.40-1.60	0.06-0.2	0.10-0.15	3.0-5.9	0.1-0.5	.49	.49			
	62-80	5-30	45-70	20-30	1.40-1.60	0.06-0.2	0.10-0.15	0.0-2.9	0.1-0.3	.37	.37			
885A:														
Virden-------	0-15	1-7	66-78	20-27	1.20-1.40	0.6-2	0.21-0.24	3.0-5.9	3.0-6.0	.28	.28	5	6	48
	15-74	1-7	51-70	25-42	1.20-1.45	0.2-0.6	0.11-0.20	6.0-8.9	0.5-1.5	.37	.37			
	74-80	1-7	65-75	20-32	1.25-1.55	0.2-0.6	0.18-0.22	3.0-5.9	0.1-0.5	.49	.49			
Fosterburg---	0-13	1-7	66-78	20-27	1.15-1.35	0.6-2	0.22-0.24	3.0-5.9	4.0-6.0	.28	.28	4	6	48
	13-41	1-7	51-64	35-42	1.25-1.45	0.06-0.2	0.16-0.20	6.0-8.9	1.0-2.0	.37	.37			
	41-71	1-7	56-70	24-40	1.30-1.50	0.06-0.2	0.18-0.22	6.0-8.9	0.5-1.0	.37	.37			
	71-80	1-7	66-80	18-27	1.30-1.55	0.2-0.6	0.20-0.22	0.0-2.9	0.1-0.5	.49	.49			
894A:														
Herrick------	0-13	1-7	66-78	20-27	1.15-1.30	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28	5	6	48
	13-39	1-7	51-63	35-42	1.20-1.40	0.2-0.6	0.12-0.17	6.0-8.9	0.2-1.0	.37	.37			
	39-60	1-7	55-73	25-40	1.20-1.40	0.2-0.6	0.16-0.20	3.0-5.9	0.1-0.5	.37	.37			
	60-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.17-0.22	0.0-2.9	0.1-0.3	.37	.37			
Biddle-------	0-16	1-7	66-80	18-27	1.15-1.35	0.6-2	0.20-0.24	0.0-2.9	2.0-4.0	.28	.28	4	6	48
	16-36	1-7	51-63	35-42	1.25-1.45	0.06-0.2	0.14-0.20	6.0-8.9	0.2-0.8	.37	.37			
	36-76	1-7	55-75	24-38	1.30-1.50	0.06-0.2	0.16-0.22	6.0-8.9	0.2-0.8	.37	.37			
	76-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.17-0.22	0.0-2.9	0.1-0.5	.37	.37			
Piasa--------	0-8	1-7	66-80	18-27	1.25-1.45	0.2-0.6	0.22-0.24	3.0-5.9	2.0-4.0	.37	.37	3	6	48
	8-12	1-7	66-80	18-27	1.30-1.50	0.06-0.2	0.18-0.20	3.0-5.9	0.2-0.8	.49	.49			
	12-48	1-7	50-63	35-43	1.35-1.55	0.01-0.06	0.09-0.10	6.0-8.9	0.2-0.8	.37	.37			
	48-80	5-30	45-70	20-30	1.40-1.60	0.06-0.2	0.10-0.12	0.0-2.9	0.1-0.5	.37	.37			
897C2:														
Bunkum-------	0-8	0-7	67-82	18-26	1.30-1.50	0.6-2	0.20-0.24	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	8-40	0-7	58-75	25-35	1.25-1.45	0.2-0.6	0.16-0.22	3.0-5.9	0.5-1.0	.37	.37			
	40-58	8-25	48-74	18-27	1.30-1.50	0.2-0.6	0.18-0.22	0.0-2.9	0.5-1.0	.37	.37			
	58-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.17-0.22	0.0-2.9	0.0-0.5	.37	.37			
Atlas--------	0-9	5-30	43-75	20-27	1.30-1.50	0.2-0.6	0.20-0.25	3.0-5.9	1.0-2.0	.32	.32	3	6	48
	9-31	10-35	20-55	35-45	1.35-1.55	0.01-0.06	0.07-0.19	6.0-8.9	0.0-1.0	.28	.28			
	31-51	10-35	20-60	30-45	1.35-1.55	0.01-0.06	0.07-0.19	6.0-8.9	0.0-1.0	.28	.28			
	51-80	15-40	20-50	25-45	1.35-1.60	0.06-0.2	0.07-0.18	3.0-5.9	0.0-1.0	.28	.28			

Table 20.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
897C3:														
Bunkum-------	0-8	0-7	58-73	27-35	1.25-1.35	0.2-0.6	0.20-0.24	3.0-5.9	0.5-1.0	.37	.37	4	7	38
	8-40	0-7	58-75	25-35	1.35-1.55	0.2-0.6	0.16-0.22	3.0-5.9	0.5-1.0	.37	.37			
	40-58	8-25	48-74	18-27	1.30-1.50	0.2-0.6	0.18-0.22	0.0-2.9	0.5-1.0	.37	.37			
	58-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.17-0.22	0.0-2.9	0.0-0.5	.37	.37			
Atlas--------	0-9	5-30	30-65	30-40	1.35-1.55	0.06-0.2	0.14-0.19	6.0-8.9	0.5-1.0	.28	.28	2	7	38
	9-31	10-35	20-55	35-45	1.35-1.55	0.01-0.06	0.07-0.19	6.0-8.9	0.0-1.0	.28	.28			
	31-51	10-35	20-60	30-45	1.35-1.55	0.01-0.06	0.07-0.19	6.0-8.9	0.0-1.0	.28	.28			
	51-80	15-40	20-50	25-45	1.35-1.60	0.06-0.2	0.07-0.18	3.0-5.9	0.0-1.0	.28	.28			
897D2:														
Bunkum-------	0-8	0-7	67-82	18-26	1.30-1.50	0.6-2	0.20-0.24	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	8-40	0-7	58-75	25-35	1.25-1.45	0.2-0.6	0.16-0.22	3.0-5.9	0.5-1.0	.37	.37			
	40-58	8-25	48-74	18-27	1.30-1.50	0.2-0.6	0.18-0.22	0.0-2.9	0.5-1.0	.37	.37			
	58-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.17-0.22	0.0-2.9	0.0-0.5	.37	.37			
Atlas--------	0-9	5-30	43-75	20-27	1.30-1.50	0.2-0.6	0.20-0.25	3.0-5.9	1.0-2.0	.32	.32	3	6	48
	9-31	10-35	20-55	35-45	1.35-1.55	0.01-0.06	0.07-0.19	6.0-8.9	0.0-1.0	.28	.28			
	31-51	10-35	20-60	30-45	1.35-1.55	0.01-0.06	0.07-0.19	6.0-8.9	0.0-1.0	.28	.28			
	51-80	15-40	20-50	25-45	1.35-1.60	0.06-0.2	0.07-0.18	3.0-5.9	0.0-1.0	.28	.28			
897D3:														
Bunkum-------	0-8	1-7	58-72	27-35	1.25-1.35	0.2-0.6	0.20-0.24	3.0-5.9	0.5-1.0	.37	.37	4	7	38
	8-40	1-7	58-72	25-35	1.25-1.45	0.2-0.6	0.16-0.22	3.0-5.9	0.2-0.8	.37	.37			
	40-58	1-7	68-80	18-27	1.30-1.50	0.2-0.6	0.18-0.22	0.0-2.9	0.2-0.8	.49	.49			
	58-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.17-0.22	0.0-2.9	0.1-0.5	.37	.37			
Atlas--------	0-9	5-20	40-60	30-40	1.35-1.55	0.06-0.2	0.14-0.19	6.0-8.9	0.5-1.0	.28	.28	2	7	38
	9-31	10-35	25-45	35-45	1.35-1.55	0.01-0.06	0.07-0.19	6.0-8.9	0.1-0.5	.28	.28			
	31-51	10-35	25-45	30-50	1.35-1.55	0.01-0.06	0.07-0.19	6.0-8.9	0.1-0.5	.28	.28			
	51-80	15-40	20-50	25-45	1.35-1.60	0.06-0.2	0.07-0.18	3.0-5.9	0.1-0.5	.28	.28			
914C3:														
Atlas--------	0-9	5-20	40-60	30-40	1.35-1.55	0.06-0.2	0.14-0.19	6.0-8.9	0.5-1.0	.28	.28	2	7	38
	9-31	10-35	25-45	35-45	1.35-1.55	0.01-0.06	0.07-0.19	6.0-8.9	0.1-0.5	.28	.28			
	31-51	10-35	25-45	30-50	1.35-1.55	0.01-0.06	0.07-0.19	6.0-8.9	0.1-0.5	.28	.28			
	51-80	15-40	20-50	25-45	1.35-1.60	0.06-0.2	0.07-0.18	3.0-5.9	0.1-0.5	.28	.28			
Grantfork----	0-5	5-20	45-65	27-35	1.35-1.55	0.2-0.6	0.15-0.18	0.0-2.9	0.5-1.0	.37	.37	4	7	38
	5-37	10-35	35-55	20-35	1.40-1.60	0.2-0.6	0.15-0.20	0.0-2.9	0.1-0.4	.37	.37			
	37-67	15-45	35-55	18-35	1.65-1.80	0.06-0.2	0.15-0.20	0.0-2.9	0.1-0.3	.37	.37			
	67-80	15-40	30-50	24-48	1.65-1.80	0.06-0.2	0.07-0.10	3.0-5.9	0.1-0.2	.28	.28			
993A:														
Cowden-------	0-8	1-7	68-80	17-27	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	2.0-3.0	.37	.37	3	6	48
	8-19	1-7	68-80	17-27	1.25-1.45	0.06-0.2	0.18-0.20	0.0-2.9	0.1-0.5	.49	.49			
	19-50	1-7	51-63	35-42	1.35-1.60	0.06-0.2	0.12-0.20	6.0-8.9	0.2-0.8	.37	.37			
	50-58	1-7	65-80	20-30	1.40-1.60	0.2-0.6	0.17-0.22	3.0-5.9	0.1-0.5	.49	.49			
	58-80	5-30	45-70	20-30	1.40-1.60	0.2-0.6	0.17-0.22	0.0-2.9	0.1-0.3	.37	.37			
Piasa--------	0-8	1-7	66-80	18-27	1.25-1.45	0.2-0.6	0.22-0.24	3.0-5.9	2.0-4.0	.37	.37	3	6	48
	8-12	1-7	66-80	18-27	1.30-1.50	0.06-0.2	0.18-0.20	3.0-5.9	0.2-0.8	.49	.49			
	12-48	1-7	50-63	35-43	1.35-1.55	0.01-0.06	0.09-0.10	6.0-8.9	0.2-0.8	.37	.37			
	48-80	5-30	45-70	20-30	1.40-1.60	0.06-0.2	0.10-0.12	0.0-2.9	0.1-0.5	.37	.37			
3076A:														
Otter--------	0-43	0-15	58-82	18-27	1.10-1.25	0.6-2	0.22-0.24	0.0-2.9	3.0-5.0	.32	.32	5	6	48
	43-50	0-15	58-82	18-27	1.20-1.45	0.6-2	0.17-0.22	3.0-5.9	1.0-3.0	.49	.49			
	50-60	5-45	32-80	15-28	1.30-1.55	0.6-2	0.15-0.20	0.0-2.9	0.5-2.0	.49	.49			

Table 20.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
3107A:														
Sawmill------	0-32	3-15	58-70	27-35	1.25-1.45	0.6-2	0.19-0.22	3.0-5.9	4.5-7.0	.28	.28	5	7	38
	32-58	5-20	45-68	27-35	1.30-1.50	0.6-2	0.17-0.20	3.0-5.9	1.5-3.5	.32	.32			
	58-65	5-25	40-70	25-35	1.30-1.50	0.6-2	0.17-0.20	3.0-5.9	1.5-3.5	.32	.32			
3304A:														
Landes-------	0-14	50-80	0-43	7-20	1.40-1.60	2-6	0.13-0.20	0.0-2.9	1.0-2.0	.20	.20	4	3	86
	14-32	50-82	0-45	5-18	1.60-1.70	2-6	0.10-0.15	0.0-2.9	0.0-2.0	.32	.32			
	32-60	50-90	0-45	5-18	1.60-1.80	6-20	0.05-0.15	0.0-2.9	0.0-2.0	.02	.02			
3333A:														
Wakeland-----	0-8	5-15	70-80	10-18	1.30-1.50	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	8-68	5-15	70-80	10-18	1.30-1.50	0.6-2	0.20-0.24	0.0-2.9	0.2-0.8	.55	.55			
	68-80	5-45	45-75	10-20	1.30-1.50	0.6-2	0.18-0.24	0.0-2.9	0.1-0.5	.55	.55			
3428A:														
Coffeen------	0-10	5-15	60-75	15-27	1.35-1.55	0.6-2	0.22-0.25	0.0-2.9	3.0-4.0	.32	.32	5	6	48
	10-47	5-15	70-80	12-18	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.5-1.5	.49	.49			
	47-60	15-65	45-70	5-15	1.50-1.70	0.6-6	0.11-0.19	0.0-2.9	0.5-1.0	.55	.55			
3451A:														
Lawson-------	0-14	0-15	58-90	10-27	1.20-1.55	0.6-2	0.22-0.24	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	14-33	0-15	55-90	10-30	1.20-1.55	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.32	.32			
	33-80	5-40	30-77	18-30	1.55-1.65	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.49	.49			
9017A:														
Keomah-------	0-9	0-7	67-84	16-26	1.30-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	9-16	0-7	67-84	16-26	1.35-1.45	0.2-0.6	0.18-0.20	0.0-2.9	0.2-1.0	.49	.49			
	16-49	0-7	51-65	35-42	1.30-1.45	0.06-0.6	0.18-0.20	6.0-8.9	0.0-0.5	.37	.37			
	49-80	0-7	55-76	24-38	1.40-1.55	0.2-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
9257A:														
Clarksdale---	0-10	0-7	66-80	20-27	1.30-1.50	0.6-2	0.22-0.25	3.0-5.9	2.0-3.0	.37	.37	5	6	48
	10-16	0-7	66-85	15-27	1.25-1.50	0.2-0.6	0.20-0.22	0.0-2.9	0.0-1.0	.43	.43			
	16-46	0-7	48-65	35-45	1.30-1.50	0.2-0.6	0.11-0.20	6.0-8.9	0.0-0.5	.37	.37			
	46-80	0-7	63-80	20-30	1.40-1.60	0.2-2	0.20-0.22	3.0-5.9	0.0-0.5	.49	.49			
9279B:														
Rozetta------	0-9	0-7	66-85	15-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	9-66	0-7	58-73	27-35	1.35-1.55	0.6-2	0.18-0.22	3.0-5.9	0.2-0.5	.37	.37			
	66-76	0-7	63-80	20-30	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.2-0.5	.49	.49			

Table 21.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate equiv-alent	Sodium adsorp-tion ratio
	In	*meq/100 g*	*pH*	*Pct*	
6B2:					
Fishhook-------------	0-7	14-22	5.1-7.3	0	0
	7-25	16-23	4.5-7.3	0	0
	25-49	21-29	4.5-7.8	0-25	0
	49-80	21-29	6.1-8.4	0-25	0
6C2:					
Fishhook-------------	0-6	14-22	5.1-7.3	0	0
	6-27	16-23	4.5-7.3	0	0
	27-58	21-29	4.5-7.8	0-25	0
	58-80	21-29	6.1-8.4	0-25	0
8D2:					
Hickory--------------	0-6	14-19	4.5-7.3	0	0
	6-47	16-22	4.5-7.3	0	0
	47-60	9.0-19	5.1-8.4	0-15	0
8D3:					
Hickory--------------	0-8	17-23	4.5-7.3	0	0
	8-46	16-22	4.5-6.0	0	0
	46-58	9.0-19	5.1-7.3	0	0
	58-80	5.0-15	5.6-8.4	0-25	0
8F:					
Hickory--------------	0-4	14-19	4.5-7.3	0	0
	4-12	9.0-14	4.5-7.3	0	0
	12-46	16-22	4.5-6.0	0	0
	46-58	9.0-19	5.1-7.3	0	0
	58-80	5.0-15	5.6-8.4	0-25	0
8F2:					
Hickory--------------	0-4	14-19	4.5-7.3	0	0
	4-37	16-22	4.5-7.3	0	0
	37-60	9.0-19	5.1-7.8	0	0
8G:					
Hickory--------------	0-4	14-19	4.5-7.3	0	0
	4-12	9.0-14	4.5-7.3	0	0
	12-40	16-22	4.5-7.3	0	0
	40-58	9.0-19	5.1-7.8	0-15	0
	58-63	5.0-15	5.6-8.4	0-25	0
16A:					
Rushville------------	0-7	4.0-17	4.5-7.3	0	0
	7-13	3.0-13	4.5-7.3	0	0
	13-32	20-33	4.5-6.5	0	0
	32-50	18-30	4.5-7.8	0	0
	50-80	10-20	5.6-8.4	0-15	0
17A:					
Keomah---------------	0-11	10-26	5.1-7.3	0	0
	11-18	9.0-24	5.1-7.3	0	0
	18-33	28-41	5.1-6.5	0	0
	33-51	16-29	5.6-7.3	0	0
	51-89	8.0-18	6.1-7.3	0-15	0

Table 21.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate equiv-alent	Sodium adsorp-tion ratio
	In	*meq/100 g*	*pH*	*Pct*	
31A:					
Pierron--------------	0-8	5.0-15	4.5-7.3	0	0
	8-20	5.0-10	4.5-7.3	0	0
	20-36	20-35	3.5-5.5	0	0
	36-66	15-30	4.5-6.5	0	0
	66-80	12-17	5.1-7.3	0	0
43A:					
Ipava----------------	0-10	16-32	5.6-7.3	0	0
	10-18	25-38	5.6-7.3	0	0
	18-31	22-39	5.6-7.3	0	0
	31-50	17-31	6.6-7.8	0-5	0
	50-60	9.0-22	7.4-8.4	0-15	0
46A:					
Herrick--------------	0-13	18-24	5.1-7.3	0	0
	13-39	21-25	4.5-6.0	0	0
	39-60	15-25	5.6-7.3	0	0
	60-80	12-17	5.6-7.8	0-10	0
50A:					
Virden---------------	0-16	24-30	5.6-7.8	0	0
	16-49	21-27	5.6-7.8	0	0
	49-60	15-20	5.6-8.4	0-25	0
112A:					
Cowden---------------	0-8	14-22	5.6-7.3	0	0
	8-19	10-17	4.5-6.0	0	0
	19-50	21-27	4.5-7.3	0	0
	50-58	8.0-19	5.6-7.8	0	0
	58-80	12-17	5.6-7.8	0	0
113A, 113B:					
Oconee---------------	0-8	12-18	5.6-7.8	0	0
	8-16	10-18	4.5-7.3	0	0
	16-47	21-27	4.5-6.0	0	0
	47-65	12-21	5.1-6.5	0	0
	65-80	12-17	5.6-7.8	0	0
119B2, 119C2:					
Elco-----------------	0-8	14-22	5.6-7.3	0	0
	8-31	14-22	5.1-7.8	0	0
	31-60	15-27	5.1-7.8	0	0
119C3:					
Elco-----------------	0-5	16-22	5.6-7.3	0	0
	5-33	14-22	5.1-7.8	0	0
	33-80	14-21	5.1-7.8	0	0
119D2:					
Elco-----------------	0-6	14-22	5.6-7.3	0	0
	6-28	14-22	5.1-7.8	0	0
	28-60	15-27	5.1-7.8	0	0
119D3:					
Elco-----------------	0-5	16-22	5.6-7.3	0	0
	5-33	14-22	5.1-7.8	0	0
	33-80	14-21	5.1-7.8	0	0

Table 21.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate equiv-alent	Sodium adsorp-tion ratio
	In	*meq/100 g*	*pH*	*Pct*	
127B:					
Harrison-------------	0-10	16-24	6.1-7.3	0	0
	10-45	15-23	5.1-6.5	0	0
	45-65	12-21	5.6-7.3	0	0
	65-80	18-30	5.1-7.8	0-20	0
134C2:					
Camden---------------	0-7	11-29	5.1-7.3	0	0
	7-34	15-29	5.1-7.3	0	0
	34-43	9.0-20	5.1-7.3	0	0
	43-80	2.0-10	6.1-7.8	0-25	0
250D:					
Velma----------------	0-16	18-24	5.1-7.3	0	0
	16-54	15-23	4.5-7.3	0	0
	54-80	12-19	7.4-8.4	5-30	0
257A:					
Clarksdale-----------	0-8	10-22	5.1-7.3	0	0
	8-16	9.0-18	5.1-7.3	0	0
	16-47	21-28	5.1-7.3	0	0
	47-67	12-19	6.1-8.4	0-15	0
	67-80	12-18	6.1-8.4	0-15	0
257B:					
Clarksdale-----------	0-9	10-22	5.1-7.3	0	0
	9-29	21-28	5.1-7.3	0	0
	29-50	12-19	6.1-8.4	0-15	0
	50-80	12-18	6.1-8.4	0-15	0
259B:					
Assumption-----------	0-16	18-24	5.6-7.3	0	0
	16-35	15-23	5.1-7.3	0	0
	35-60	18-28	5.1-7.3	0	0
	60-80	18-28	6.1-7.8	0-10	0
259B2:					
Assumption-----------	0-8	18-24	5.6-7.3	0	0
	8-35	15-23	5.1-7.3	0	0
	35-60	18-28	5.1-7.3	0	0
259C2:					
Assumption-----------	0-8	18-24	5.6-7.3	0	0
	8-24	15-23	5.1-7.3	0	0
	24-60	18-28	5.1-7.3	0	0
279A:					
Rozetta--------------	0-4	10-22	5.1-7.3	0	0
	4-11	7.0-17	4.5-7.3	0	0
	11-50	16-22	4.5-6.0	0	0
	50-60	12-17	5.6-7.8	0-15	0
279B:					
Rozetta--------------	0-7	10-22	5.1-7.3	0	0
	7-11	7.0-17	4.5-7.3	0	0
	11-55	16-22	4.5-6.0	0	0
	55-60	12-17	5.6-7.8	0-15	0

Table 21.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate equivalent	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	
279C2:					
Rozetta--------------	0-8	10-22	5.1-7.3	0	0
	8-56	16-22	4.5-6.0	0	0
	56-80	12-17	5.6-7.8	0-15	0
280B:					
Fayette--------------	0-9	15-20	5.1-7.3	0	0
	9-39	15-20	4.5-6.5	0	0
	39-60	15-20	5.1-7.8	0-15	0
280C2:					
Fayette--------------	0-8	18-25	5.1-7.3	0	0
	8-64	15-20	4.5-6.0	0	0
	64-80	15-20	5.1-7.8	0-15	0
470B:					
Keller---------------	0-10	18-26	5.6-7.8	0	0
	10-31	16-22	5.1-7.3	0	0
	31-60	18-25	5.1-7.8	0	0
477B:					
Winfield-------------	0-9	10-15	5.6-7.3	0	0
	9-13	12-17	5.6-7.3	0	0
	13-62	13-18	4.5-6.5	0	0
	62-80	10-14	5.1-7.3	0	0
477C2:					
Winfield-------------	0-6	10-15	5.6-7.3	0	0
	6-50	13-18	4.5-6.5	0	0
	50-80	10-14	5.1-7.3	0	0
477C3:					
Winfield-------------	0-3	14-17	5.6-7.3	0	0
	3-50	13-18	4.5-6.5	0	0
	50-80	10-14	5.1-6.5	0	0
477D3:					
Winfield-------------	0-5	14-17	5.6-7.3	0	0
	5-48	13-18	4.5-6.5	0	0
	48-80	10-14	5.1-7.3	0	0
515B3, 515C3, 515D3:					
Bunkum---------------	0-8	17-23	5.1-7.3	0	0
	8-40	18-24	4.5-6.5	0	0
	40-58	12-22	5.1-7.3	0	0
	58-80	12-17	5.1-7.3	0	0
517A, 517B:					
Marine---------------	0-9	9.0-15	5.1-7.3	0	0
	9-17	5.0-10	4.5-6.5	0	0
	17-43	20-30	4.5-5.5	0	0
	43-62	10-20	5.1-7.3	0	0
	62-80	12-17	5.6-7.8	0	0
536:					
Dumps.					

Table 21.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate equiv-alent	Sodium adsorp-tion ratio
	In	*meq/100 g*	*pH*	*Pct*	
570D2:					
Martinsville---------	0-10	8.0-14	5.1-7.3	0	0
	10-34	10-18	5.1-7.3	0	0
	34-44	8.0-13	5.1-7.8	0	0
	44-60	3.0-10	6.1-8.4	10-45	0
582B:					
Homen----------------	0-9	15-25	5.6-7.3	0	0
	9-15	15-22	4.5-6.5	0	0
	15-58	18-28	4.5-6.0	0	0
	58-80	12-17	5.1-6.5	0	0
582C2:					
Homen----------------	0-7	15-25	5.6-7.3	0	0
	7-50	18-28	4.5-6.0	0	0
	50-80	12-17	5.1-6.5	0	0
587B:					
Terril---------------	0-30	20-25	6.1-7.3	0	0
	30-68	20-25	6.1-7.3	0	0
	68-80	15-25	6.1-7.8	0-15	0
657A:					
Burksville-----------	0-7	9.0-22	6.1-7.3	0	0-5
	7-13	6.0-17	6.1-7.8	0	5-15
	13-54	15-22	5.6-8.4	0-10	5-15
	54-80	11-22	6.6-8.4	0-20	5-15
660C2:					
Coatsburg------------	0-7	18-26	5.1-7.8	0	0
	7-80	21-29	5.1-6.5	0	0
705B:					
Buckhart-------------	0-15	18-25	5.6-7.3	0	0
	15-67	15-23	5.6-7.8	0	0
	67-80	12-18	6.6-7.8	0-15	0
713G:					
Judyville------------	0-4	7.0-22	3.6-5.5	0	0
	4-20	3.0-20	3.6-5.5	0	0
	20-60	---	---	0	0
802B:					
Orthents-------------	0-6	10-25	5.6-7.8	0-10	0
	6-60	10-20	5.6-7.8	0-20	0
802E:					
Orthents-------------	0-6	14-20	5.6-7.8	0	0
	6-60	14-20	5.6-7.8	0	0
830:					
Landfills.					
880B2:					
Coulterville---------	0-7	9.0-18	5.6-7.8	0	0-5
	7-15	16-22	4.5-7.8	0	5-15
	15-68	11-22	7.4-8.4	0-10	5-15
	68-80	12-17	6.6-8.4	0-20	5-15

Table 21.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate equiv-alent	Sodium adsorp-tion ratio
	In	*meq/100 g*	*pH*	*Pct*	
880B2:					
Darmstadt------------	0-11	7.0-20	5.1-7.3	0	0-5
	11-21	16-23	4.5-7.8	0	13-21
	21-39	16-23	6.6-9.0	0-20	15-25
	39-62	12-17	7.4-9.0	0-30	5-20
	62-80	12-17	7.4-9.0	0-30	5-20
882B:					
Oconee---------------	0-8	12-18	5.6-7.8	0	0
	8-16	10-18	4.5-7.3	0	0
	16-47	21-27	4.5-6.0	0	0
	47-65	12-21	5.1-6.5	0	0
	65-80	12-17	5.6-7.8	0	0
Coulterville---------	0-7	9.0-18	5.6-7.8	0	0-5
	7-15	16-22	4.5-7.8	0	5-15
	15-68	11-22	7.4-8.4	0-10	5-15
	68-80	12-17	6.6-8.4	0-20	5-15
Darmstadt------------	0-11	7.0-20	5.1-7.3	0	0-5
	11-21	16-23	4.5-7.8	0	13-21
	21-39	16-23	6.6-9.0	0-20	15-25
	39-62	12-17	7.4-9.0	0-30	5-20
	62-80	12-17	7.4-9.0	0-30	5-20
885A:					
Virden---------------	0-15	23-28	5.6-7.8	0	0
	15-74	21-27	5.6-7.8	0	0
	74-80	15-20	5.6-8.4	0-10	0
Fosterburg-----------	0-13	20-27	6.1-7.8	0	0-5
	13-41	22-30	6.1-8.4	0-10	5-15
	41-71	20-28	6.1-8.4	0-15	5-10
	71-80	12-20	6.6-8.4	0-5	0-10
894A:					
Herrick--------------	0-13	18-24	5.1-7.3	0	0
	13-39	21-25	4.5-6.0	0	0
	39-60	15-25	5.6-7.3	0	0
	60-80	12-17	5.6-7.8	0-10	0
Biddle---------------	0-16	20-27	5.6-7.3	0	0
	16-36	22-30	5.6-8.4	0-5	5-15
	36-76	20-28	6.1-8.4	0-15	5-10
	76-80	12-17	6.6-8.4	0-15	0-10
Piasa----------------	0-8	11-16	5.6-7.8	0	0-5
	8-12	11-16	5.6-7.8	0	0-5
	12-48	21-26	6.1-9.0	0-10	15-25
	48-80	12-17	6.6-8.4	0-30	5-20
897C2:					
Bunkum---------------	0-8	17-23	5.1-7.3	0	0
	8-40	18-24	4.5-6.5	0	0
	40-58	12-22	5.1-7.3	0	0
	58-80	12-17	5.1-7.3	0	0

Table 21.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate equiv-alent	Sodium adsorp-tion ratio
	In	*meq/100 g*	*pH*	*Pct*	
897C2:					
Atlas----------------	0-9	19-26	4.5-7.3	0	0
	9-31	21-29	4.5-7.3	0	0
	31-51	18-29	4.5-7.8	0	0
	51-80	12-20	6.1-7.8	0-5	0
897C3:					
Bunkum---------------	0-8	17-23	5.1-7.3	0	0
	8-40	18-24	4.5-6.5	0	0
	40-58	12-22	5.1-7.3	0	0
	58-80	12-17	5.1-7.3	0	0
Atlas----------------	0-9	19-26	4.5-7.3	0	0
	9-31	21-29	4.5-7.3	0	0
	31-51	18-29	4.5-7.8	0	0
	51-80	12-20	6.1-7.8	0-5	0
897D2:					
Bunkum---------------	0-8	17-23	5.1-7.3	0	0
	8-40	18-24	4.5-6.5	0	0
	40-58	12-22	5.1-7.3	0	0
	58-80	12-17	5.1-7.3	0	0
Atlas----------------	0-9	19-26	4.5-7.3	0	0
	9-31	21-29	4.5-7.3	0	0
	31-51	18-29	4.5-7.8	0	0
	51-80	12-20	6.1-7.8	0-5	0
897D3:					
Bunkum---------------	0-8	17-23	5.1-7.3	0	0
	8-40	18-24	4.5-6.5	0	0
	40-58	12-22	5.1-7.3	0	0
	58-80	12-17	5.1-7.3	0	0
Atlas----------------	0-9	19-26	4.5-7.3	0	0
	9-31	21-29	4.5-7.3	0	0
	31-51	18-29	4.5-7.8	0	0
	51-80	12-20	6.1-7.8	0-5	0
914C3:					
Atlas----------------	0-9	19-26	4.5-7.3	0	0
	9-31	21-29	4.5-7.3	0	0
	31-51	18-29	4.5-7.8	0	0
	51-80	12-20	6.1-7.8	0-5	0
Grantfork------------	0-5	17-20	4.5-7.8	0	0-10
	5-37	12-18	5.1-8.4	0-10	5-15
	37-67	12-18	7.4-9.0	0-30	5-15
	67-80	12-18	7.4-9.0	0-30	5-15
993A:					
Cowden---------------	0-8	14-22	5.6-7.3	0	0
	8-19	10-17	4.5-6.0	0	0
	19-50	21-27	4.5-7.3	0	0
	50-58	8.0-19	5.6-7.8	0	0
	58-80	12-17	5.6-7.8	0	0

Table 21.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate equivalent	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	
993A:					
Piasa	0-8	11-16	5.6-7.8	0	0-5
	8-12	11-16	5.6-7.8	0	0-5
	12-48	21-26	6.1-9.0	0-10	15-25
	48-80	12-17	6.6-8.4	0-30	5-20
3076A:					
Otter	0-43	16-36	6.1-7.8	0	0
	43-50	12-22	6.1-7.8	0	0
	50-60	10-21	6.1-8.4	0	0
3107A:					
Sawmill	0-32	23-36	6.1-7.3	0	0
	32-58	18-34	6.6-7.8	0	0
	58-65	18-34	6.6-8.4	0-5	0
3304A:					
Landes	0-14	6.0-16	5.6-8.4	0	0
	14-32	3.0-13	5.6-8.4	0-10	0
	32-60	3.0-13	5.6-8.4	0-20	0
3333A:					
Wakeland	0-8	4.0-12	5.6-7.3	0	0
	8-68	4.0-12	5.6-7.8	0	0
	68-80	4.0-12	5.6-7.8	0	0
3428A:					
Coffeen	0-10	13-22	5.6-7.8	0	0
	10-47	6.0-15	5.6-7.3	0	0
	47-60	3.0-13	5.6-7.3	0	0
3451A:					
Lawson	0-14	11-28	6.1-7.8	0	0
	14-33	11-29	6.1-7.8	0	0
	33-80	11-23	6.1-7.8	0	0
9017A:					
Keomah	0-9	15-20	4.5-7.3	0	0
	9-16	15-20	4.5-7.3	0	0
	16-49	25-30	4.5-5.5	0	0
	49-80	15-20	5.1-7.3	0	0
9257A:					
Clarksdale	0-10	10-22	5.1-7.3	0	0
	10-16	9.0-18	5.1-6.5	0	0
	16-46	21-28	5.1-7.3	0	0
	46-80	12-19	6.1-8.4	0-15	0
9279B:					
Rozetta	0-9	10-22	5.1-7.3	0	0
	9-66	16-22	4.5-6.0	0	0
	66-76	12-17	5.6-7.8	0-15	0

Table 22.--Water Features

(See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*		*Ft*				
6B2, 6C2:										
Fishhook	D	Jan-May	1.0-2.0	1.5-3.5	Perched	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
8D2, 8D3, 8F, 8F2, 8G:										
Hickory	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	None
16A:										
Rushville	D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
17A:										
Keomah	C	Jan-May	0.5-2.0	>6.0	Apparent	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
31A:										
Pierron	D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
43A:										
Ipava	B	Jan-May	1.0-2.0	>6.0	Apparent	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
46A:										
Herrick	B	Jan-May	1.0-2.0	>6.0	Apparent	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
50A:										
Virden	B/D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
112A:										
Cowden	D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
113A, 113B:										
Oconee	C	Jan-May	0.5-2.0	>6.0	Apparent	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
119B2, 119C2, 119C3, 119D2, 119D3:										
Elco	B	Jan	>6.0	>6.0	---	---	---	---	---	None
		Feb-Apr	2.0-3.5	2.8-4.5	Perched	---	---	---	---	None
		May-Dec	>6.0	>6.0	---	---	---	---	---	None
127B:										
Harrison	B	Jan	>6.0	>6.0	---	---	---	---	---	None
		Feb-Apr	2.0-3.5	3.5-5.0	Perched	---	---	---	---	None
		May-Dec	>6.0	>6.0	---	---	---	---	---	None
134C2:										
Camden	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	None
250D:										
Velma	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
257A, 257B:										
Clarksdale------------	C	Jan-May	0.5-2.0	>6.0	Apparent	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
259B, 259B2, 259C2:										
Assumption------------	B	Jan	>6.0	>6.0	---	---	---	---	---	None
		Feb-Apr	2.0-3.5	2.8-4.5	Perched	---	---	---	---	None
		May-Dec	>6.0	>6.0	---	---	---	---	---	None
279A, 279B, 279C2:										
Rozetta---------------	B	Jan	>6.0	>6.0	---	---	---	---	---	None
		Feb-Apr	4.0-6.0	>6.0	Apparent	---	---	---	---	None
		May-Dec	>6.0	>6.0	---	---	---	---	---	None
280B, 280C2:										
Fayette---------------	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	None
470B:										
Keller----------------	C	Jan-May	1.0-2.0	1.5-3.5	Perched	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
477B, 477C2, 477C3, 477D3:										
Winfield------------	B	Jan	>6.0	>6.0	---	---	---	---	---	None
		Feb-Apr	2.0-3.5	>6.0	Apparent	---	---	---	---	None
		May-Dec	>6.0	>6.0	---	---	---	---	---	None
515B3, 515C3, 515D3:										
Bunkum----------------	C	Jan-May	1.0-2.0	>6.0	Apparent	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
517A, 517B:										
Marine----------------	C	Jan-May	0.5-2.0	1.5-3.0	Perched	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
536:										
Dumps.										
570D2:										
Martinsville----------	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	None
582B, 582C2:										
Homen-----------------	B	Jan	>6.0	>6.0	---	---	---	---	---	None
		Feb-Apr	2.0-3.5	3.5-6.0	Perched	---	---	---	---	None
		May-Dec	>6.0	>6.0	---	---	---	---	---	None
587B:										
Terril----------------	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	None
657A:										
Burksville------------	D	Jan-May	0.0-1.0	2.5-4.0	Perched	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
660C2:										
Coatsburg-------------	D	Jan-May	0.0-1.0	0.5-2.5	Perched	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
705B:										
Buckhart--------------	B	Jan	>6.0	>6.0	---	---	---	---	---	None
		Feb-Apr	2.0-3.5	>6.0	Apparent	---	---	---	---	None
		May-Dec	>6.0	>6.0	---	---	---	---	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table			Ponding			Flooding	
			Upper limit	Lower limit	Kind	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft		Ft				
713G:										
Judyville	C	Jan-Dec	>6.0	>6.0	---	---	---	---	---	None
802B, 802E:										
Orthents	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	None
830:										
Landfills.										
880B2:										
Coulterville	D	Jan-May	0.5-2.0	2.5-4.0	Perched	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
Darmstadt	D	Jan-May	0.5-2.0	2.5-4.0	Perched	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
882B:										
Oconee	C	Jan-May	0.5-2.0	>6.0	Apparent	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
Coulterville	D	Jan-May	0.5-2.0	2.5-4.0	Perched	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
Darmstadt	D	Jan-May	0.5-2.0	2.5-4.0	Perched	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
885A:										
Virden	B/D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
Fosterburg	D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
894A:										
Herrick	B	Jan-May	1.0-2.0	>6.0	Apparent	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
Biddle	C	Jan-May	1.0-2.0	2.5-4.0	Perched	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
Piasa	D	Jan-May	0.0-1.0	2.5-4.0	Perched	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
897C2, 897C3, 897D2, 897D3:										
Bunkum	C	Jan-May	1.0-2.0	>6.0	Apparent	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
Atlas	D	Jan-May	0.5-2.0	1.2-2.5	Perched	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
914C3:										
Atlas	D	Jan-May	0.5-2.0	1.2-2.5	Perched	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
Grantfork	D	Jan-May	0.5-2.0	2.5-4.0	Perched	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
993A:										
Cowden	D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*		*Ft*				
993A:										
Piasa-----------------	D	Jan-May	0.0-1.0	2.5-4.0	Perched	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
3076A:										
Otter-----------------	B/D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	Brief	Frequent
		Jun	>6.0	>6.0	---	---	---	---	Brief	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	None
		Nov-Dec	>6.0	>6.0	---	---	---	---	Brief	Frequent
3107A:										
Sawmill---------------	B/D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	Brief	Frequent
		Jun	>6.0	>6.0	---	---	---	---	Brief	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	None
		Nov-Dec	>6.0	>6.0	---	---	---	---	Brief	Frequent
3304A:										
Landes----------------	B	Jan-Jun	>6.0	>6.0	---	---	---	---	Brief	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	None
		Nov-Dec	>6.0	>6.0	---	---	---	---	Brief	Frequent
3333A:										
Wakeland--------------	C	Jan-May	0.5-2.0	>6.0	Apparent	---	---	---	Brief	Frequent
		Jun	>6.0	>6.0	---	---	---	---	Brief	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	None
		Nov-Dec	>6.0	>6.0	---	---	---	---	Brief	Frequent
3428A:										
Coffeen---------------	B	Jan-May	1.0-2.0	>6.0	Apparent	---	---	---	Brief	Frequent
		Jun	>6.0	>6.0	---	---	---	---	Brief	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	None
		Nov-Dec	>6.0	>6.0	---	---	---	---	Brief	Frequent
3451A:										
Lawson----------------	B	Jan-May	1.0-2.0	>6.0	Apparent	---	---	---	Brief	Frequent
		Jun	>6.0	>6.0	---	---	---	---	Brief	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	None
		Nov-Dec	>6.0	>6.0	---	---	---	---	Brief	Frequent
9017A:										
Keomah----------------	C	Jan-May	0.5-2.0	>6.0	Apparent	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
9257A:										
Clarksdale------------	C	Jan-May	0.5-2.0	>6.0	Apparent	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
9279B:										
Rozetta---------------	B	Jan	>6.0	>6.0	---	---	---	---	---	None
		Feb-Apr	4.0-6.0	>6.0	Apparent	---	---	---	---	None
		May-Dec	>6.0	>6.0	---	---	---	---	---	None

Table 23.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
6B2, 6C2:					
Fishhook	---	---	High	High	High
8D2, 8D3, 8F, 8F2, 8G:					
Hickory	---	---	Moderate	Moderate	Moderate
16A:					
Rushville	---	---	High	High	High
17A:					
Keomah	---	---	High	High	Moderate
31A:					
Pierron	---	---	High	High	High
43A:					
Ipava	---	---	High	High	Moderate
46A:					
Herrick	---	---	High	High	High
50A:					
Virden	---	---	High	High	Moderate
112A:					
Cowden	---	---	High	High	Moderate
113A, 113B:					
Oconee	---	---	High	High	High
119B2, 119C2, 119C3, 119D2, 119D3:					
Elco	---	---	High	High	Moderate
127B:					
Harrison	---	---	High	High	Moderate
134C2:					
Camden	---	---	High	Moderate	Moderate
250D:					
Velma	---	---	Moderate	High	High
257A, 257B:					
Clarksdale	---	---	High	High	Moderate
259B, 259B2, 259C2:					
Assumption	---	---	High	High	Moderate
279A, 279B, 279C2:					
Rozetta	---	---	High	Moderate	Moderate
280B, 280C2:					
Fayette	---	---	High	Moderate	Moderate
470B:					
Keller	---	---	High	High	Moderate

Table 23.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In			
477B, 477C2, 477C3 477D3:					
Winfield	---	---	High	Moderate	Moderate
515B3, 515C3, 515D3:					
Bunkum	---	---	High	High	High
517A, 517B:					
Marine	---	---	High	High	High
536:					
Dumps.					
570D2:					
Martinsville	---	---	Moderate	Moderate	Moderate
582B, 582C2:					
Homen	---	---	High	High	High
587B:					
Terril	---	---	Moderate	Moderate	Low
657A:					
Burksville	---	---	High	High	Low
660C2:					
Coatsburg	---	---	High	High	Moderate
705B:					
Buckhart	---	---	High	Moderate	Moderate
713G:					
Judyville	Bedrock (lithic)	20-40	Low	Low	High
802B, 802E:					
Orthents	---	---	Moderate	Moderate	Moderate
830:					
Landfills.					
880B2:					
Coulterville	---	---	High	High	High
Darmstadt	---	---	High	High	High
882B:					
Oconee	---	---	High	High	High
Coulterville	---	---	High	High	High
Darmstadt	---	---	High	High	High
885A:					
Virden	---	---	High	High	Moderate
Fosterburg	---	---	High	High	Low
894A:					
Herrick	---	---	High	High	High
Biddle	---	---	High	High	Moderate

Table 23.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In			
894A:					
Piasa	---	---	High	High	Low
897C2, 897C3, 897D2, 897D3:					
Bunkum	---	---	High	High	High
Atlas	---	---	High	High	Moderate
914C3:					
Atlas	---	---	High	High	Moderate
Grantfork	---	---	High	High	Low
993A:					
Cowden	---	---	High	High	Moderate
Piasa	---	---	High	High	Low
3076A:					
Otter	---	---	High	High	Low
3107A:					
Sawmill	---	---	High	High	Low
3304A:					
Landes	---	---	Moderate	Low	Low
3333A:					
Wakeland	---	---	High	Moderate	Low
3428A:					
Coffeen	---	---	High	High	Moderate
3451A:					
Lawson	---	---	High	Moderate	Low
9017A:					
Keomah	---	---	High	High	Moderate
9257A:					
Clarksdale	---	---	High	High	Moderate
9279B:					
Rozetta	---	---	High	Moderate	Moderate

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NRCS SOILS 37A
3/95

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

DESCRIPTION SYMBOL

CULTURAL FEATURES

BOUNDARIES

- • National, state, or province
- • County or parish
- Minor civil division
- Reservation, (national forest or park, state forest or park)
- Land grant
- Limit of soil survey (label) and/or denied access areas
- • Field sheet matchline & neatline
- Previously published survey

OTHER BOUNDARY (label)

- Airport, airfield — Davis airstrip
- • Cemetery — St Johns Cemetery
- City / county Park — Central Park

STATE COORDINATE TICK

• LAND DIVISION CORNERS (section and land grants)

• GEOGRAPHIC COORDINATE TICK

TRANSPORTATION

- Divided roads
- Other roads
- # Trails

ROAD EMBLEMS & DESIGNATIONS

- • Interstate — 79, 79 345
- • Federal — 410, 410 224
- • State — 52, 52 347
- County, farm, or ranch — 376

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPELINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad
- Single side slope (showing actual feature location)

DAMS

- Medium or small — W

LANDFORM FEATURES

- Prominent Hill or Peak
- Soil Sample Site

* Cultural features for use in Illinois

DESCRIPTION SYMBOL

CULTURAL FEATURES (cont.)

MISCELLANEOUS CULTURAL FEATURES

- Farmland, house (omit in urban areas)
- Church
- School
- Other Religion (label) — Mt Carmel
- Located object (label) — Ranger Station
- Tank (label) — Petroleum
- Lookout Tower
- Oil and / or Natural Gas Wells
- Windmill
- Lighthouse

HYDROGRAPHIC FEATURES

STREAMS

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end

DRAINAGE AND IRRIGATION

- Double line canal (label) — CANAL
- Perennial drainage and/or irrigation ditch
- Intermittent drainage and/or irrigation ditch

SMALL LAKES, PONDS, AND RESERVOIRS

- Perennial water
- Miscellaneous water
- Flood pool line — FLOOD POOL LINE

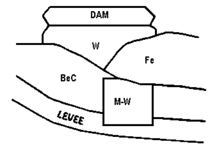
MISCELLANEOUS WATER FEATURES

- Spring
- Well, artesian
- Well, irrigation

DESCRIPTION SYMBOL

SPECIAL SYMBOLS FOR SOIL SURVEY AND SSURGO

SOIL DELINEATIONS AND SYMBOLS



LANDFORM FEATURES

ESCARPMENTS

- Bedrock
- Other than bedrock

SHORT STEEP SLOPE

GULLY

DEPRESSION, closed

SINKHOLE

EXCAVATIONS

PITS

- Borrow pit
- Gravel pit
- Mine or quarry

LANDFILL

MISCELLANEOUS SURFACE FEATURES

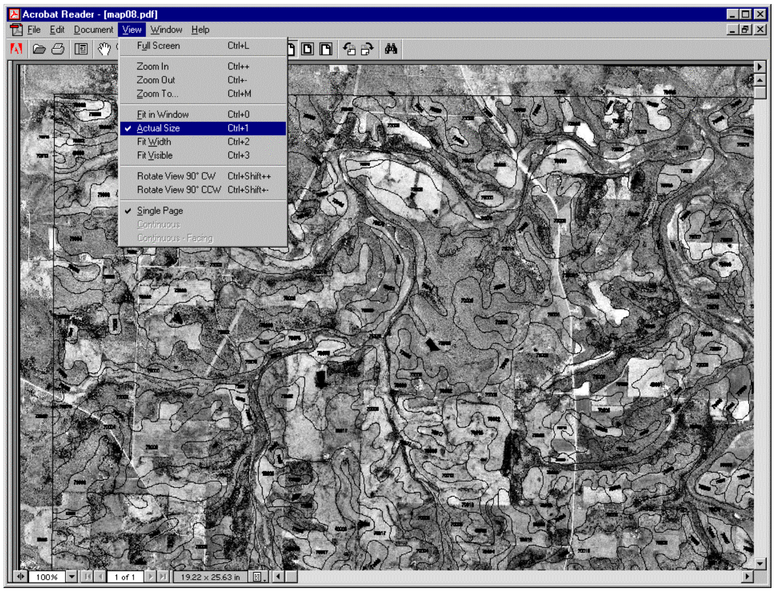
- Blowout
- Clay spot
- Gravelly spot
- Lava flow
- Marsh or swamp
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip
- Sodic spot
- Spoil area
- Stony spot
- Very stony spot
- Wet spot

RECOMMENDED AD HOC SOIL SYMBOLS

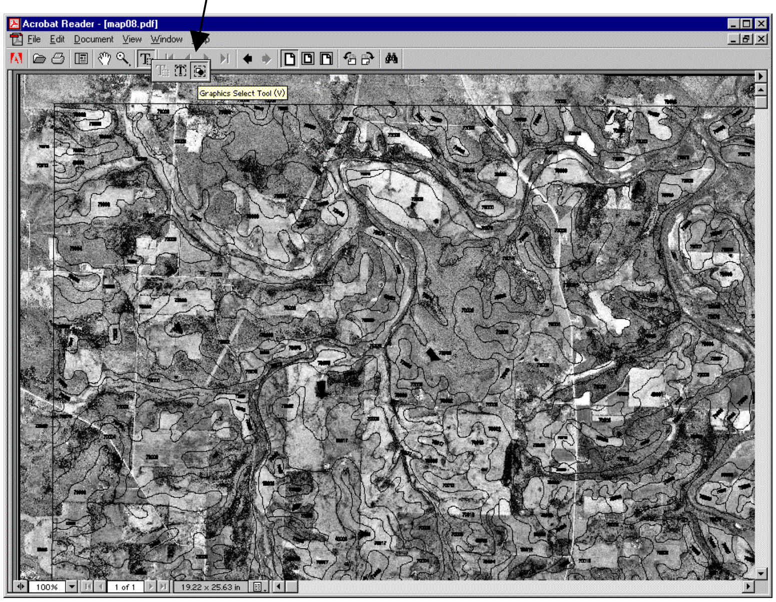
Description	SYMBOL_ID	Label	Description	SYMBOL_ID	Label
	1			23	
	2			24	
	3			25	
	4		Gray spot	26	GSP
	5			27	
	6			28	
	7		Calcareous spot	29	CSP
	8		Muck spot	30	MUC
	9			31	
	10			32	
	11			33	
Dumps	12	DMP		34	
	13		Mine subsided Area	35	MSA
	14			36	
Oil brine spot	15	OBS		37	
	16			38	
	17			39	
	18		Glacial Till spot	40	GLA
	19			41	
Disturbed soil spot	20	DSS		42	
	21			43	
	22			44	

Printing Soil Survey Maps

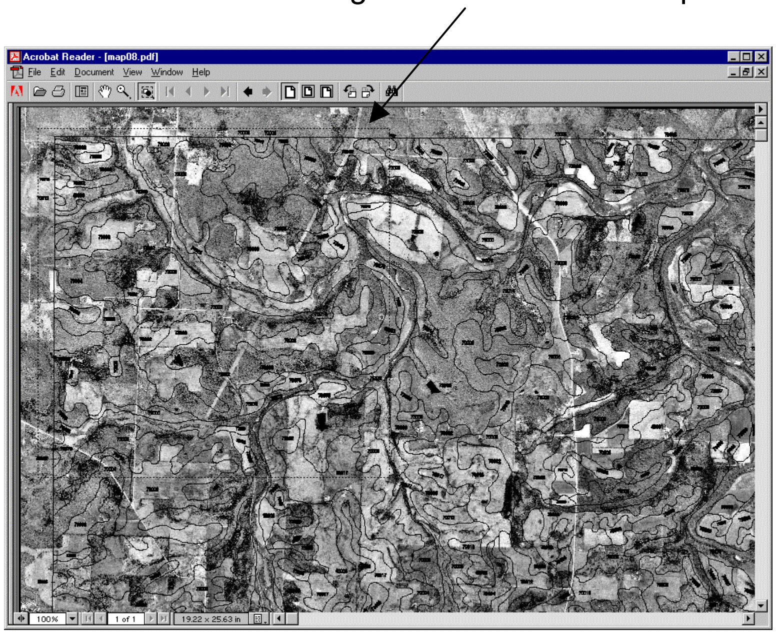
The soil survey maps were made at a scale of 1:12000 and were designed to be used at that scale. To print the maps at 1:12000 scale, set the view to Actual Size from the View pull down menu.



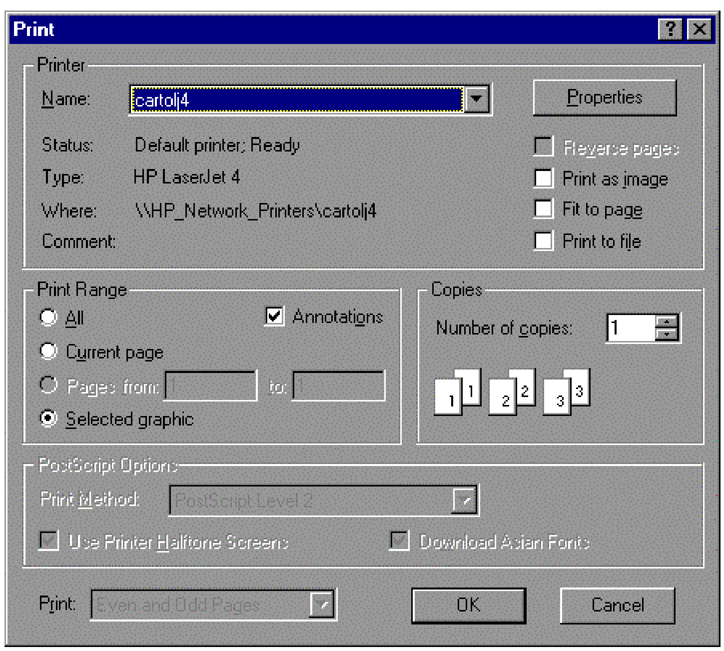
Using the pan tool, go to the area you would like to print. Select the Graphic Selection Tool by holding down the Text Selection Tool button and clicking on the Graphic Selection Tool button.



Then using the Graphic Selection Tool drag a box around the area you would like to print. Note dashed lines forming a box around area to print.



Select File Print. The Print Range will be set to Selected graphic. Click OK and the map will be sent to the printer.



Definitions of Special Symbols

Name	Description	Label
Blowout	A small saucer-, cup-, or trough-shaped hollow or depression formed by wind erosion on a preexisting sand deposit. Typically 0.2 acre to 2.0 acres.	BLO
Borrow pit	An open excavation from which soil and underlying material have been removed, usually for construction purposes. Typically 0.2 acre to 2.0 acres.	BPI
Calcareous spot	An area in which the soil contains carbonates in the surface layer. The surface layer of the named soils in the surrounding map unit is noncalcareous. Typically 0.5 acre to 2.0 acres.	CSP
Clay spot	A spot where the surface layer is silty clay or clay in areas where the surface layer of the soils in the surrounding map unit is sandy loam, loam, silt loam, or coarser. Typically 0.2 acre to 2.0 acres.	CLA
Depression, closed	A shallow, saucer-shaped area that is slightly lower on the landscape than the surrounding area and that does not have a natural outlet for surface drainage. Typically 0.2 acre to 2.0 acres.	DEP
Disturbed soil spot	An area in which the soil has been removed and materials redeposited as a result of human activity. Typically 0.25 acre to 2.0 acres.	DSS
Dumps	Areas of nonsoil material that support little or no vegetation. Typically 0.5 acre to 2.0 acres.	DMP
Escarpment, bedrock	A relatively continuous and steep slope or cliff, produced by erosion or faulting, that breaks the general continuity of more gently sloping land surfaces. Exposed material is hard or soft bedrock.	ESB
Escarpment, nonbedrock	A relatively continuous and steep slope or cliff, generally produced by erosion but in some places produced by faulting, that breaks the continuity of more gently sloping land surfaces. Exposed earthy material is nonsoil or very shallow soil.	ESO
Glacial till spot	An exposure of glacial till at the surface of the earth. Typically 0.25 acre to 2.0 acres.	GLA
Gravel pit	An open excavation from which soil and underlying material have been removed and used, without crushing, as a source of sand or gravel. Typically 0.2 acre to 2.0 acres.	GPI
Gravelly spot	A spot where the surface layer has more than 35 percent, by volume, rock fragments that are mostly less than 3 inches in diameter in an area that has less than 15 percent rock fragments. Typically 0.2 acre to 2.0 acres.	GRA

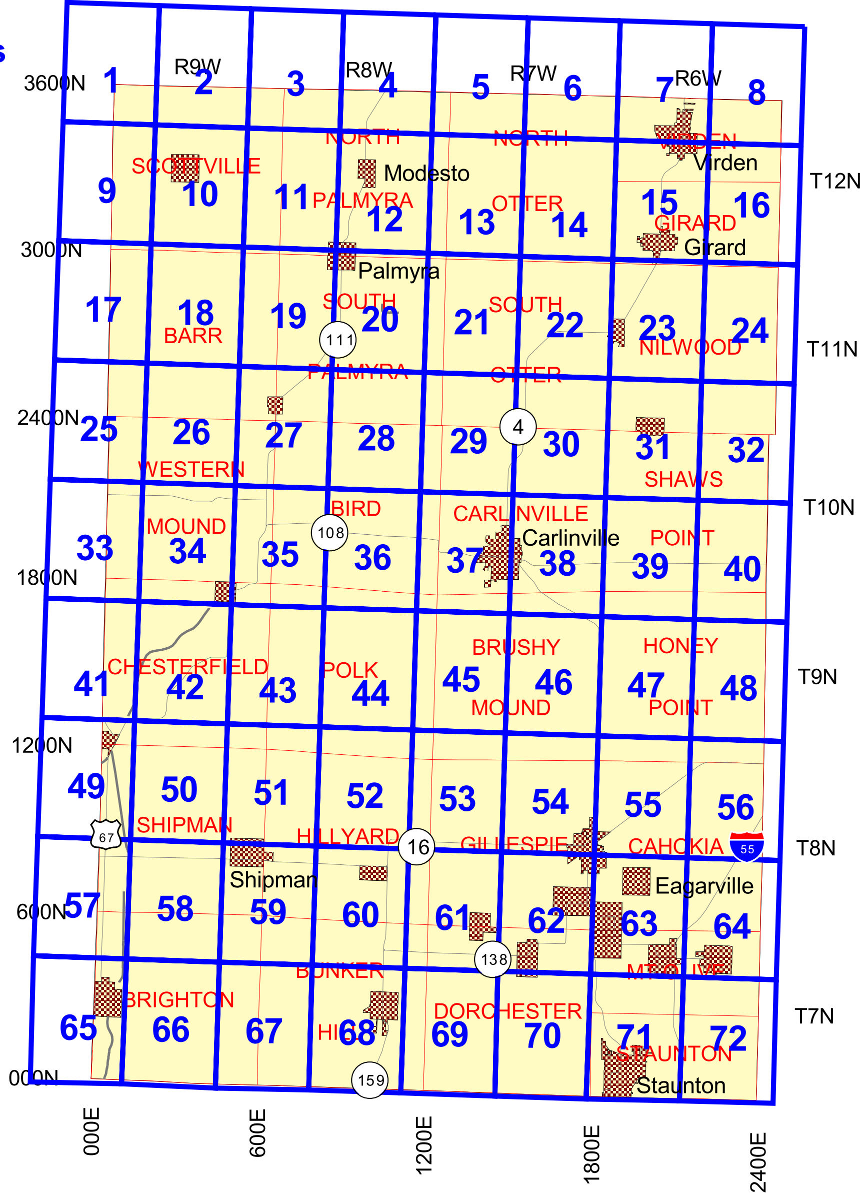
Name	Description	Label
Gray spot	A spot in which the surface layer is gray in areas where the subsurface layer of the named soils in the surrounding map unit are darker. Typically 0.25 acre to 2.0 acres.	GSP
Gully	A small channel with steep sides cut by running water through which water ordinarily runs only after a rain or after melting of snow or ice. It generally is an obstacle to wheeled vehicles and is too deep to be obliterated by ordinary tillage.	GUL
Iron bog	An accumulation of iron in the form of nodules, concretions, or soft masses on the surface or near the surface of soils. Typically 0.2 acre to 2.0 acres.	BFE
Landfill	An area of accumulated waste products of human habitation, either above or below natural ground level. Typically 0.2 acre to 2.0 acres.	LDF
Levee	An embankment that confines or controls water, especially one built along the banks of a river to prevent overflow onto lowlands.	LVS
Marsh or swamp	A water-saturated, very poorly drained area that is intermittently or permanently covered by water. Sedges, cattails, and rushes are the dominant vegetation in marshes, and trees or shrubs are the dominant vegetation in swamps. Typically 0.2 acre to 2.0 acres.	MAR
Mine or quarry	An open excavation from which soil and underlying material have been removed and in which bedrock is exposed. Also denotes surface openings to underground mines. Typically 0.2 acre to 2.0 acres.	MPI
Mine subsided area	An area that is lower than the soils in the surrounding map unit because of subsurface coal mining. Typically 0.25 acre to 3.0 acres.	MSA
Miscellaneous water	A small, constructed body of water that is used for industrial, sanitary, or mining applications and that contains water most of the year. Typically 0.2 acre to 2.0 acres.	MIS
Muck spot	An area that occurs within an area of poorly drained or very poorly drained soil and that has a histic epipedon or an organic surface layer. The symbol is used only in map units consisting of mineral soil. Typically 0.2 acre to 2.0 acres.	MUC
Oil brine spot	An area of soil that has been severely damaged by the accumulation of oil brine, with or without liquid oily wastes. The area is typically barren but may have a vegetative cover of salt-tolerant plants. Typically 0.2 acre to 2.0 acres.	OBS
Perennial water	A small, natural or constructed lake, pond, or pit that contains water most of the year. Typically 0.2 acre to 2.0 acres.	WAT

Name	Description	Label
Rock outcrop	An exposure of bedrock at the surface of the earth. Not used where the named soils of the surrounding map unit are shallow over bedrock or where “Rock outcrop” is a named component of the map unit. Typically 0.2 acre to 2.0 acres.	ROC
Saline spot	An area where the surface layer has an electrical conductivity of 8 mmhos/cm-l more than the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has an electrical conductivity of 2 mmhos/cm-l or less. Typically 0.2 acre to 2.0 acres.	SAL
Sandy spot	A spot where the surface layer is loamy fine sand or coarser in areas where the surface layer of the named soils in the surrounding map unit is very fine sandy loam or finer. Typically 0.2 acre to 2.0 acres.	SAN
Severely eroded spot	An area where, on the average, 75 percent or more of the original surface layer has been lost because of accelerated erosion. Not used in map units in which “severely eroded,” “very severely eroded,” or “gullied” is part of the map unit name. Typically 0.2 acre to 2.0 acres.	ERO
Short steep slope	A narrow area of soil having slopes that are at least two slope classes steeper than the slope class of the surrounding map unit.	SLP
Sinkhole	A closed depression formed either by solution of the surficial rock or by collapse of underlying caves. Typically 0.2 acre to 2.0 acres.	SNK
Slide or slip	A prominent landform scar or ridge caused by fairly recent mass movement or descent of earthy material resulting from failure of earth or rock under shear stress along one or several surfaces. Typically 0.2 acre to 2.0 acres.	SLI
Sodic spot	An area where the surface layer has a sodium adsorption ratio that is at least 10 more than that of the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has a sodium adsorption ratio of 5 or less. Typically 0.2 acre to 2.0 acres.	SOD
Spoil area	A pile of earthy materials, either smoothed or uneven, resulting from human activity. Typically 0.2 acre to 2.0 acres.	SPO
Stony spot	A spot where 0.01 to 0.1 percent of the surface cover is rock fragments that are more than 10 inches in diameter in areas where the surrounding soil has no surface stones. Typically 0.2 acre to 2.0 acres.	STN
Unclassified water	A small, natural or manmade lake, pond, or pit that contains water, of an unspecified nature, most of the year. Typically 0.2 acre to 2.0 acres.	UWT

Name	Description	Label
Very stony spot	A spot where 0.1 to 3.0 percent of the surface cover is rock fragments that are more than 10 inches in diameter in areas where the surface cover of the surrounding soil is less than 0.01 percent stones. Typically 0.2 acre to 2.0 acres.	STV
Wet depression	A shallow, concave area within an area of poorly drained or very poorly drained soils in which water is ponded for intermittent periods. The concave area is saturated for appreciably longer periods of time than the surrounding soil. Typically 0.2 acre to 2.0 acres.	WDP
Wet spot	A somewhat poorly drained to very poorly drained area that is at least two drainage classes wetter than the named soils in the surrounding map unit. Typically 0.2 acres to 2.0 acres.	WET

Macoupin County, Illinois
Index to atlas sheets.

Click on a blue number to view soil map of area



UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
NORTONVILLE SE QUADRANGLE
SHEET NUMBER 1 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 15.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 NORTONVILLE NW
2 NORTONVILLE NE
3 FRANKLIN NW
4 NORTONVILLE SW
5 FRANKLIN SW (SHEET 2)
6 ATHENSVILLE NW
7 ATHENSVILLE NE (SHEET 9)
8 SCOTTVILLE NW (SHEET 10)

INDEX TO ADJOINING 3.75 MAPS

NORTONVILLE SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 1 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
FRANKLIN SW QUADRANGLE
SHEET NUMBER 2 OF 72

SCALE 1:12000

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NORTH

QUARTER QUADRANGLE LOCATION

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 NORTONVILLE NE
2 FRANKLIN NW
3 FRANKLIN NE
4 NORTONVILLE SE (SHEET 1)
5 FRANKLIN SE (SHEET 3)
6 ATHENSVILLE NE (SHEET 9)
7 SCOTTVILLE NW (SHEET 10)
8 SCOTTVILLE NE (SHEET 11)

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FRANKLIN SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 2 OF 72

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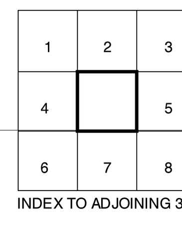

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
WAVERLY SW QUADRANGLE
SHEET NUMBER 4 OF 72

SCALE 1:12000

MILES

FEET

KILOMETERS

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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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NORTH

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

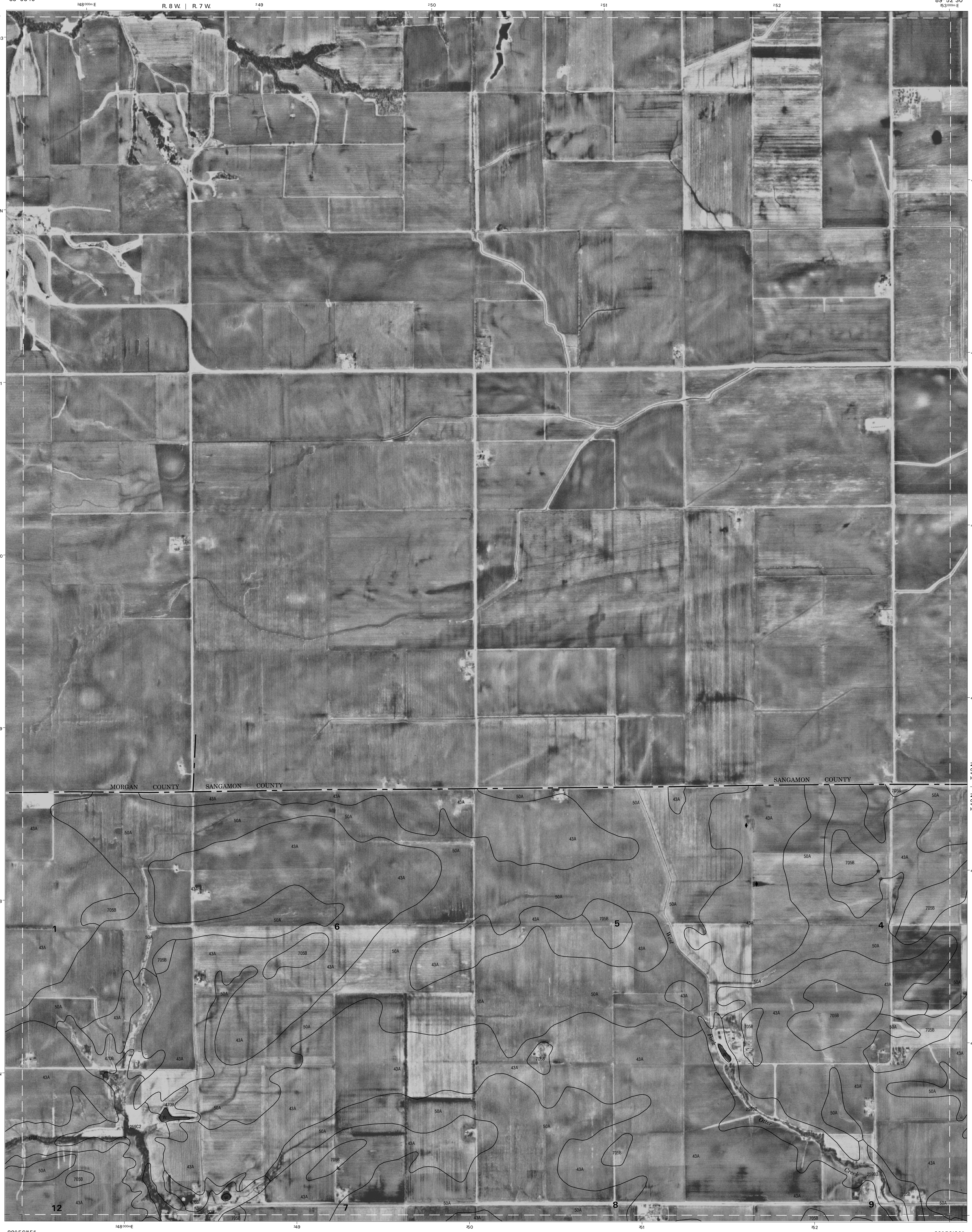
1 FRANKLIN NE
2 WAVERLY NW
3 WAVERLY NE
4 FRANKLIN SE (SHEET 3)
5 WAVERLY SE (SHEET 5)
6 SCOTTVILLE NE (SHEET 11)
7 PALMYRA NW (SHEET 12)
8 PALMYRA NE (SHEET 13)

INDEX TO ADJOINING 3.75 MAPS

WAVERLY SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 4 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
WAVERLY SE QUADRANGLE
SHEET NUMBER 5 OF 72



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SCALE 1:12000

MILES: 0.5 — 0 — 0.5
FEET: 500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500
KILOMETERS: 0.5 — 0 — 0.5

1	2	3
4		5
6	7	8

1 WAVERLY NW
2 WAVERLY NE
3 VIRDEN NORTH NW
4 WAVERLY SW (SHEET 4)
5 VIRDEN NORTH SW (SHEET 6)
6 PALMYRA NW (SHEET 12)
7 PALMYRA NE (SHEET 13)
8 VIRDEN SOUTH NW (SHEET 14)

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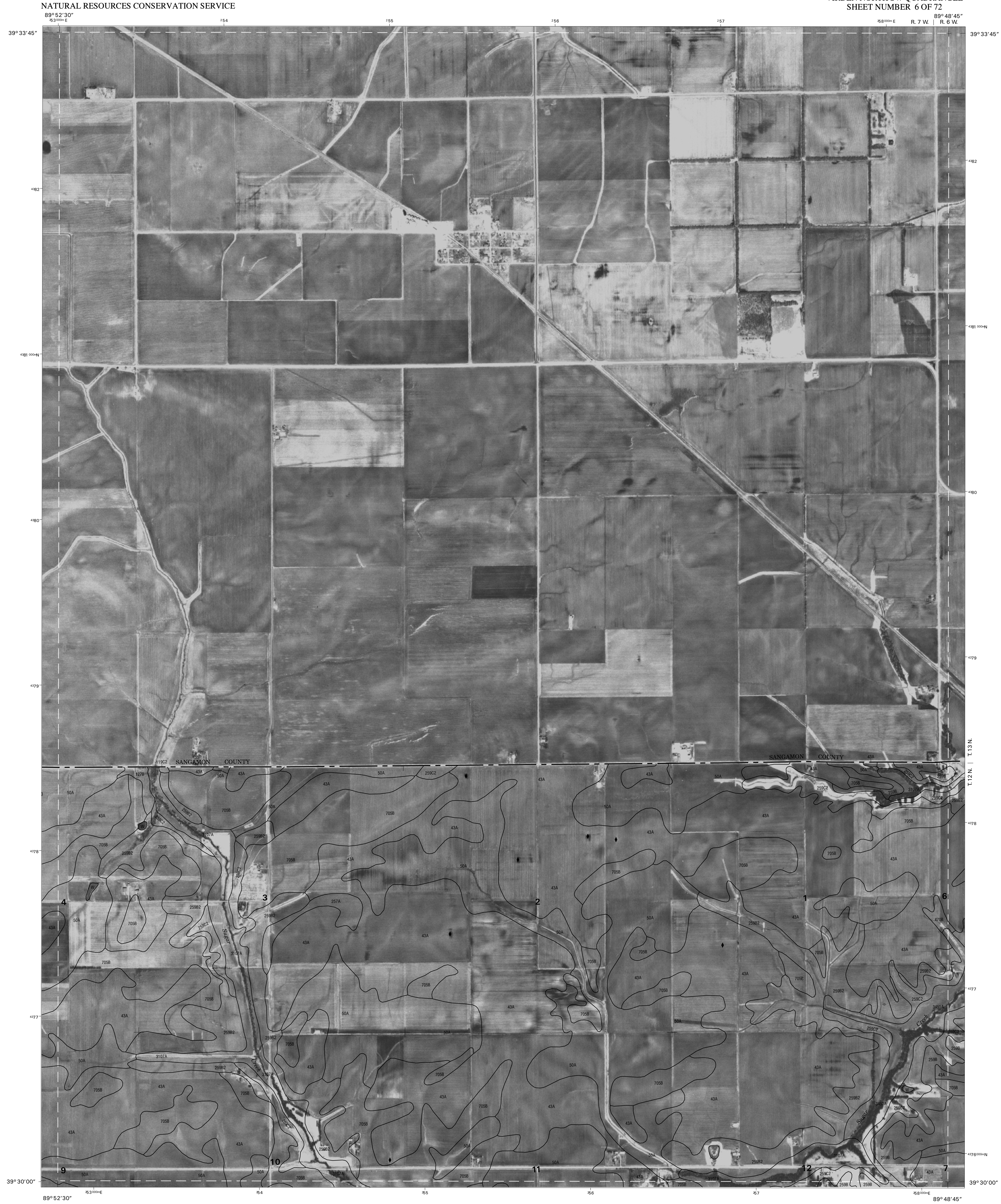
WAVERLY SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 5 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
VIRDEN NORTH SW QUADRANGLE
SHEET NUMBER 6 OF 72



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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 WAVERLY NE
2 VIRDEN NORTH NW
3 VIRDEN NORTH NE
4 WAVERLY SE (SHEET 5)
5 VIRDEN NORTH SE (SHEET 7)
6 PALMYRA NE (SHEET 13)
7 VIRDEN SOUTH NW (SHEET 14)
8 VIRDEN SOUTH NE (SHEET 15)

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VIRDEN NORTH SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 6 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
VIRDEN NORTH SE QUADRANGLE
SHEET NUMBER 7 OF 72

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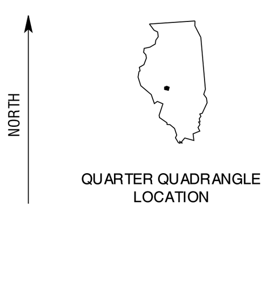
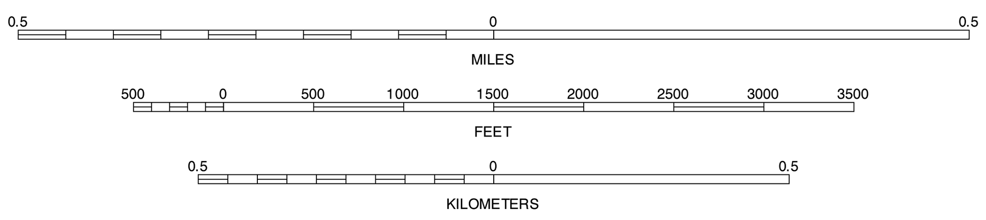
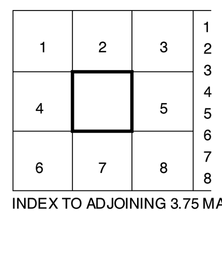


QUARTER QUADRANGLE LOCATION

SCALE 1:12000





1 VIRDEN NORTH NW
2 VIRDEN NORTH NE
3 DIVERNON NW
4 VIRDEN NORTH SW (SHEET 6)
5 DIVERNON SW (SHEET 8)
6 VIRDEN SOUTH NW (SHEET 14)
7 VIRDEN SOUTH NE (SHEET 15)
8 FARMERSVILLE NW (SHEET 16)

INDEX TO ADJOINING 3.75 MAPS

VIRDEN NORTH SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 7 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
DIVERNON SW QUADRANGLE
SHEET NUMBER 8 OF 72

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

1	2	3
4		5
6	7	8

1 VIRDEN NORTH NE
2 DIVERNON NW
3 DIVERNON NE
4 VIRDEN NORTH SE (SHEET 7)
5 DIVERNON SE
6 VIRDEN SOUTH NE (SHEET 15)
7 FARMERSVILLE NW (SHEET 16)
8 FARMERSVILLE NE

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DIVERNON SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 8 OF 72

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES 0.5 0 0.5

FEET 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS 0.5 0 0.5

1	2	3
4		5
6	7	8

1 NORTONVILLE SW
2 NORTONVILLE SE (SHEET 1)
3 FRANKLIN SW (SHEET 2)
4 ATHENSVILLE NW
5 SCOTTVILLE NW (SHEET 10)
6 ATHENSVILLE SW
7 ATHENSVILLE SE (SHEET 17)
8 SCOTTVILLE SW (SHEET 18)

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
SCOTTVILLE NW QUADRANGLE
SHEET NUMBER 10 OF 72

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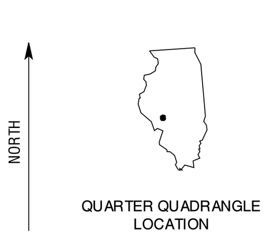

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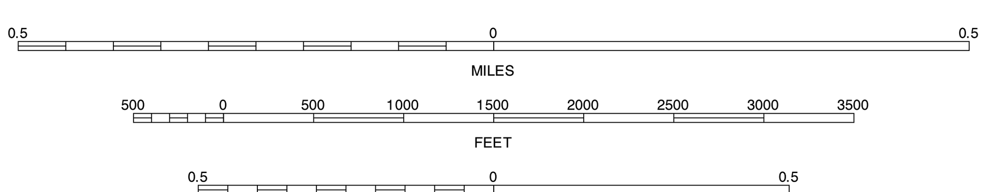

1	2	3
4		5
6	7	8

1 NORTONVILLE SE (SHEET 1)
2 FRANKLIN SW (SHEET 2)
3 FRANKLIN SE (SHEET 3)
4 ATHENSVILLE NE (SHEET 9)
5 SCOTTVILLE NE (SHEET 11)
6 ATHENSVILLE SE (SHEET 17)
7 SCOTTVILLE SW (SHEET 18)
8 SCOTTVILLE SE (SHEET 19)

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SCOTTVILLE NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 10 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

SCALE 1:12000

MILES

FEET

KILOMETERS

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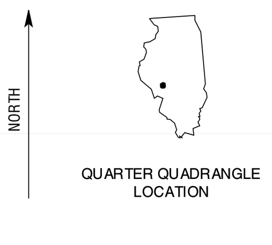

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 FRANKLIN SW (SHEET 2)
2 FRANKLIN SE (SHEET 3)
3 WAVERLY SW (SHEET 4)
4 SCOTTVILLE NW (SHEET 10)
5 PALMYRA NW (SHEET 12)
6 SCOTTVILLE SW (SHEET 18)
7 SCOTTVILLE SE (SHEET 19)
8 PALMYRA SW (SHEET 20)

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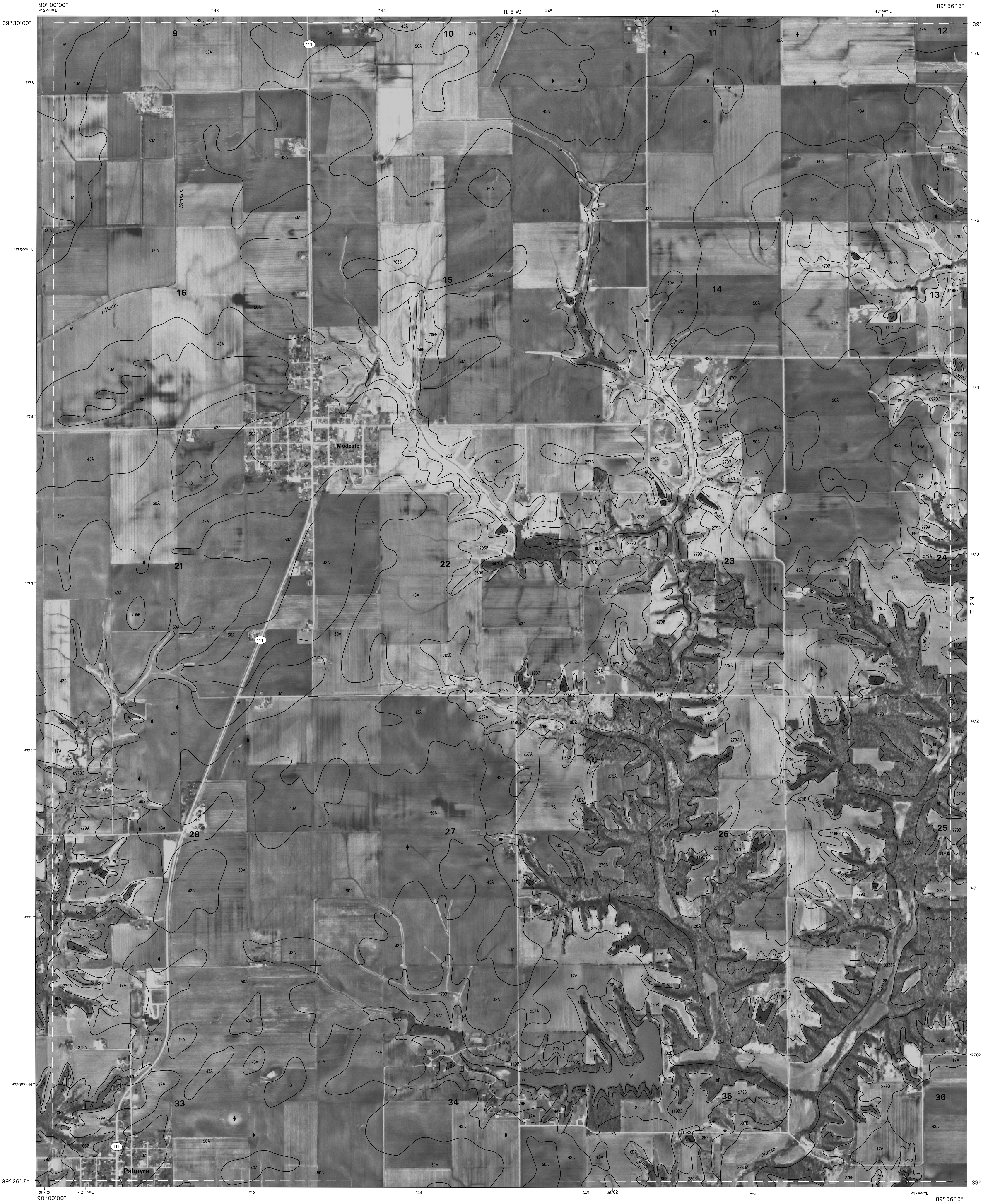
SCOTTVILLE NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 11 OF 72



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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 FRANKLIN SE (SHEET 3)
2 WAVERLY SW (SHEET 4)
3 WAVERLY SE (SHEET 5)
4 SCOTTVILLE NE (SHEET 11)
5 PALMYRA NE (SHEET 13)
6 SCOTTVILLE SE (SHEET 19)
7 PALMYRA SW (SHEET 20)
8 PALMYRA SE (SHEET 21)

INDEX TO ADJOINING 3.75 MAPS

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
PALMYRA NE QUADRANGLE
SHEET NUMBER 13 OF 72

SCALE 1:12000

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NORTH

QUARTER QUADRANGLE LOCATION

MILES

FEET

KILOMETERS

1 WAVERLY SW (SHEET 4)
2 WAVERLY SE (SHEET 5)
3 VIRDEN NORTH SW (SHEET 6)
4 PALMYRA NW (SHEET 12)
5 VIRDEN SOUTH NW (SHEET 14)
6 PALMYRA SW (SHEET 20)
7 PALMYRA SE (SHEET 21)
8 VIRDEN SOUTH SW (SHEET 22)

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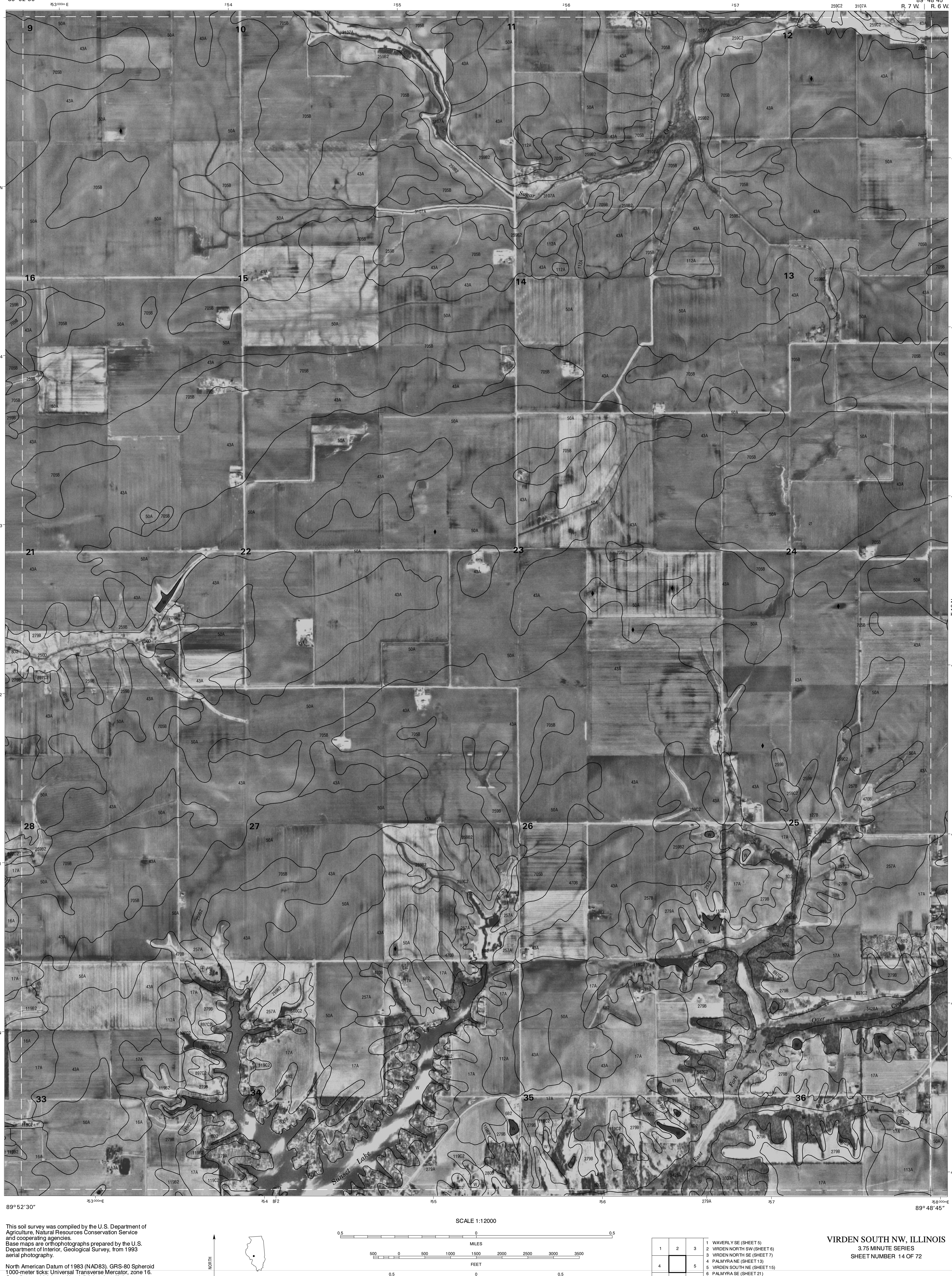
PALMYRA NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 13 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
VIRDEN SOUTH NW QUADRANGLE
SHEET NUMBER 14 OF 72



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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 — 0 — 0.5

FEET: 500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500

KILOMETERS: 0.5 — 0 — 0.5

1	2	3
4		5
6	7	8

1 WAVERLY SE (SHEET 5)
2 VIRDEN NORTH SW (SHEET 6)
3 VIRDEN NORTH SE (SHEET 7)
4 PALMYRA NE (SHEET 13)
5 VIRDEN SOUTH NE (SHEET 15)
6 PALMYRA SE (SHEET 21)
7 VIRDEN SOUTH SW (SHEET 22)
8 VIRDEN SOUTH SE (SHEET 23)

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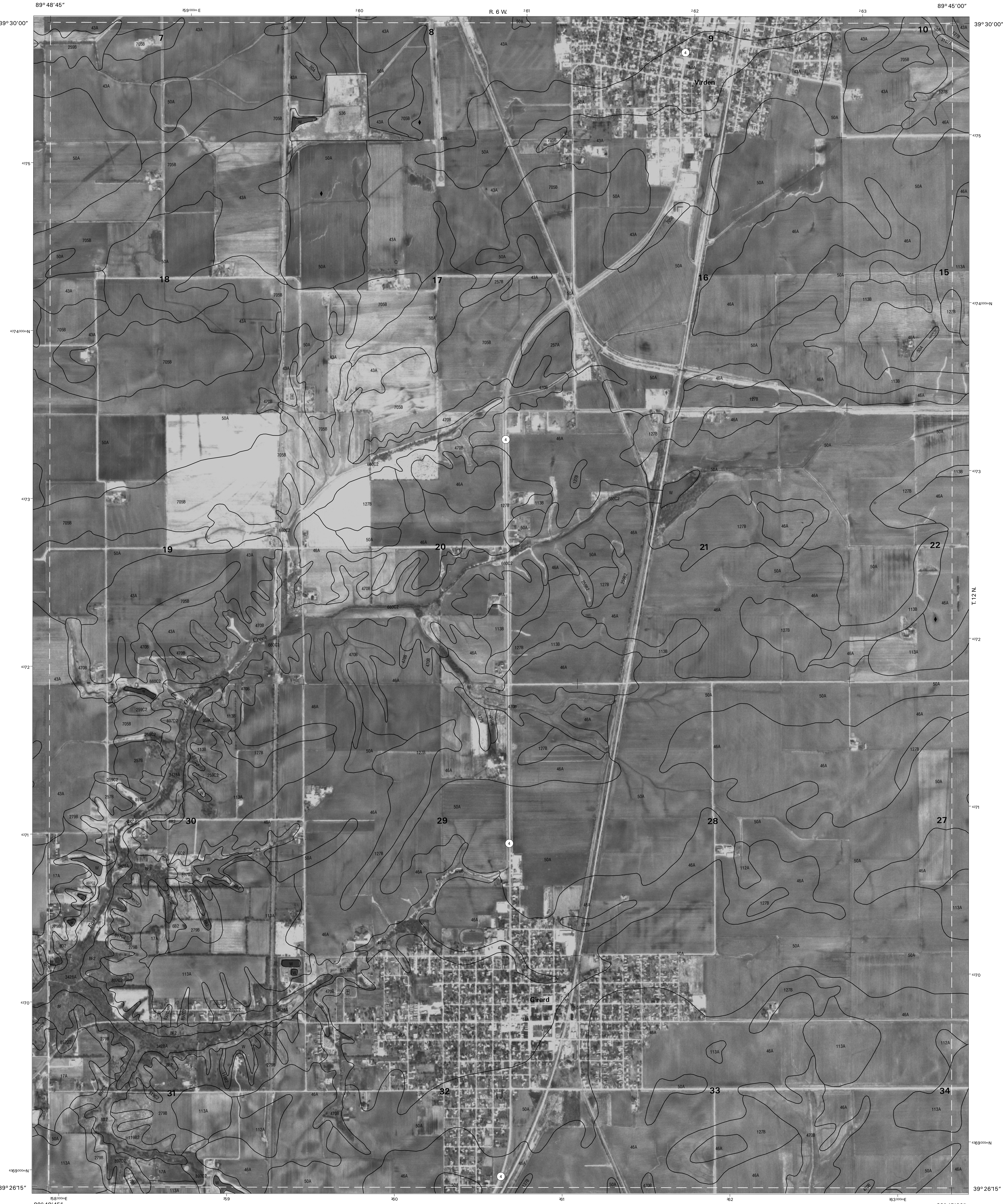
VIRDEN SOUTH NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 14 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
VIRDEN SOUTH NE QUADRANGLE
SHEET NUMBER 15 OF 72



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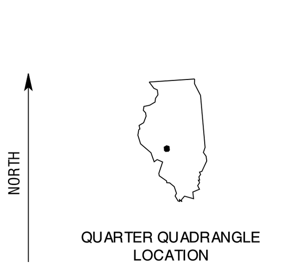
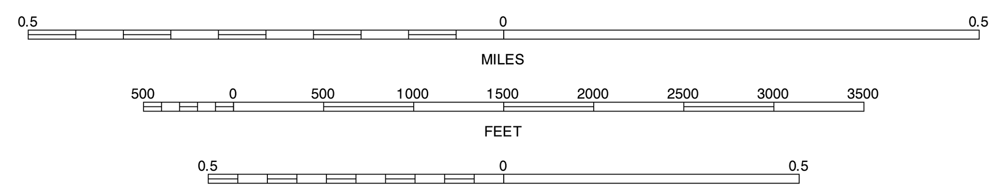


QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 VIRDEN NORTH SW (SHEET 6)
2 VIRDEN NORTH SE (SHEET 7)
3 DIVERNON SW (SHEET 8)
4 VIRDEN SOUTH NW (SHEET 14)
5 FARMERSVILLE NW (SHEET 16)
6 VIRDEN SOUTH SW (SHEET 22)
7 VIRDEN SOUTH SE (SHEET 23)
8 FARMERSVILLE SW (SHEET 24)

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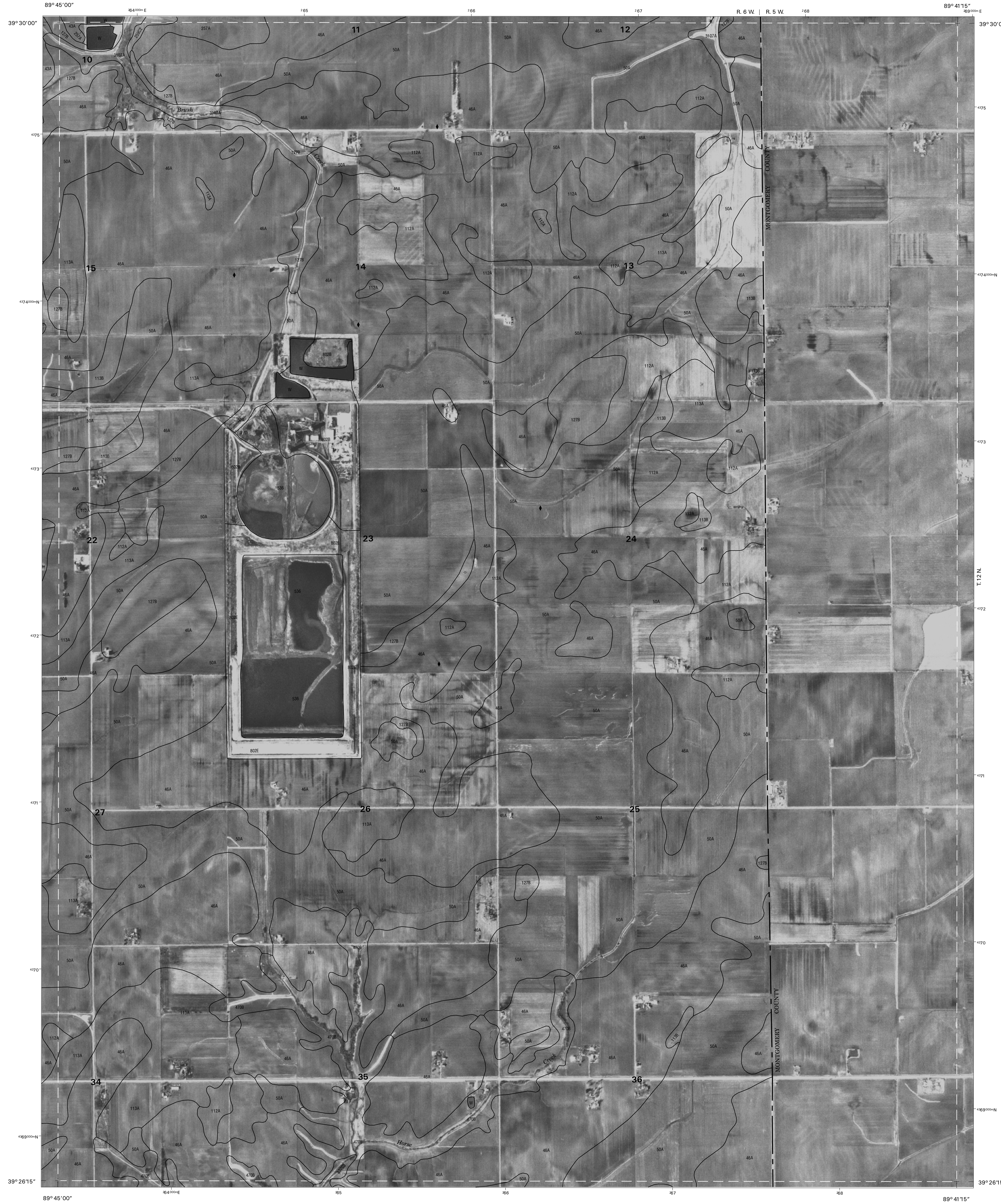
VIRDEN SOUTH NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 15 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
FARMERSVILLE NW QUADRANGLE
SHEET NUMBER 16 OF 72



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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 VIRDEN NORTH SE (SHEET 7)
2 DIVERNON SW (SHEET 8)
3 DIVERNON SE
4 VIRDEN SOUTH NE (SHEET 15)
5 FARMERSVILLE NE
6 VIRDEN SOUTH SE (SHEET 23)
7 FARMERSVILLE SW (SHEET 24)
8 FARMERSVILLE SE

INDEX TO ADJOINING 3.75 MAPS

FARMERSVILLE NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 16 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
ATHENSVILLE SE QUADRANGLE
SHEET NUMBER 17 OF 72

SCALE 1:12000

MILES

FEET

KILOMETERS

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 15.
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QUARTER QUADRANGLE
LOCATION

1	2	3
4		5
6	7	8

1 ATHENSVILLE NW
2 ATHENSVILLE NE (SHEET 9)
3 SCOTTVILLE NW (SHEET 10)
4 ATHENSVILLE SW
5 SCOTTVILLE SW (SHEET 18)
6 GREENFIELD NW
7 GREENFIELD NE (SHEET 25)
8 HETTICK NW (SHEET 26)

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ATHENSVILLE SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 17 OF 72

90° 07′30″ 90° 03′45″
39° 26′15″ 39° 26′15″

39° 22′30″ 39° 22′30″
90° 07′30″ 90° 03′45″

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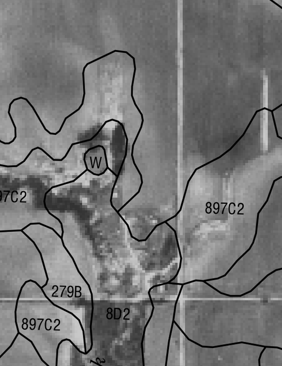

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 ATHENSVILLE NE (SHEET 9)
2 SCOTTVILLE NW (SHEET 10)
3 SCOTTVILLE NE (SHEET 11)
4 ATHENSVILLE SE (SHEET 17)
5 SCOTTVILLE SE (SHEET 19)
6 GREENFIELD NE (SHEET 25)
7 HETTICK NW (SHEET 26)
8 HETTICK NE (SHEET 27)

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SCOTTVILLE SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 18 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
SCOTTVILLE SE QUADRANGLE
SHEET NUMBER 19 OF 72

SCALE 1:12000

MILES

FEET

KILOMETERS

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

1 SCOTTVILLE NW (SHEET 10)
2 SCOTTVILLE NE (SHEET 11)
3 PALMYRA NW (SHEET 12)
4 SCOTTVILLE SW (SHEET 18)
5 PALMYRA SW (SHEET 20)
6 HETTICK NW (SHEET 26)
7 HETTICK NE (SHEET 27)
8 CARLINVILLE WEST NW (SHEET 28)

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SCOTTVILLE SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 19 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
PALMYRA SW QUADRANGLE
SHEET NUMBER 20 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 SCOTTVILLE NE (SHEET 11)
2 PALMYRA NW (SHEET 12)
3 PALMYRA NE (SHEET 13)
4 SCOTTVILLE SE (SHEET 19)
5 PALMYRA SE (SHEET 21)
6 HETTICK NE (SHEET 27)
7 CARLINVILLE WEST NW (SHEET 28)
8 CARLINVILLE WEST NE (SHEET 29)

INDEX TO ADJOINING 3.75 MAPS

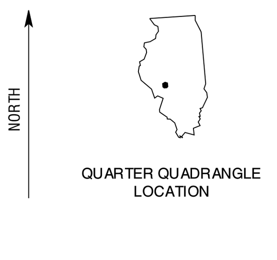
PALMYRA SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 20 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
PALMYRA SE QUADRANGLE
SHEET NUMBER 21 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.



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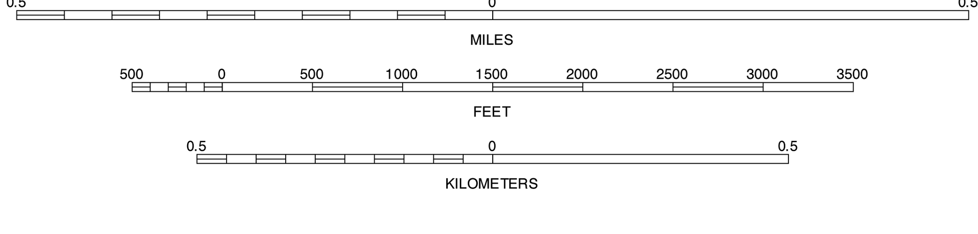

1	2	3
4		5
6	7	8

1 PALMYRA NW (SHEET 12)
2 PALMYRA NE (SHEET 13)
3 VIRDEN SOUTH NW (SHEET 14)
4 PALMYRA SW (SHEET 20)
5 VIRDEN SOUTH SW (SHEET 22)
6 CARLINVILLE WEST NW (SHEET 28)
7 CARLINVILLE WEST NE (SHEET 29)
8 CARLINVILLE EAST NW (SHEET 30)

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PALMYRA SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 21 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
VIRDEN SOUTH SW QUADRANGLE
SHEET NUMBER 22 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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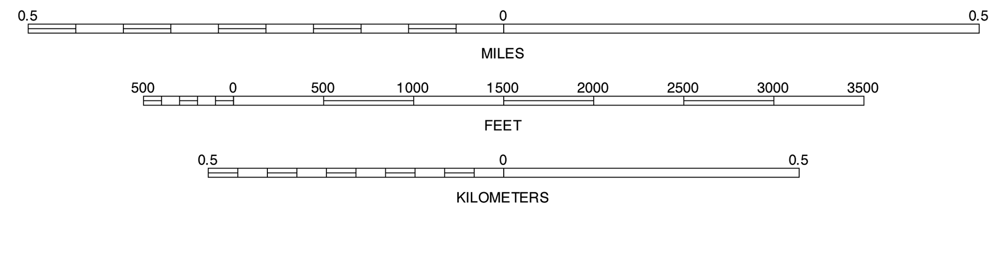
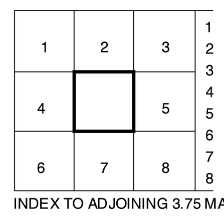
North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000





1 PALMYRA NE (SHEET 13)
2 VIRDEN SOUTH NW (SHEET 14)
3 VIRDEN SOUTH NE (SHEET 15)
4 PALMYRA SE (SHEET 21)
5 VIRDEN SOUTH SE (SHEET 23)
6 CARLINVILLE WEST NE (SHEET 29)
7 CARLINVILLE EAST NW (SHEET 30)
8 CARLINVILLE EAST NE (SHEET 31)

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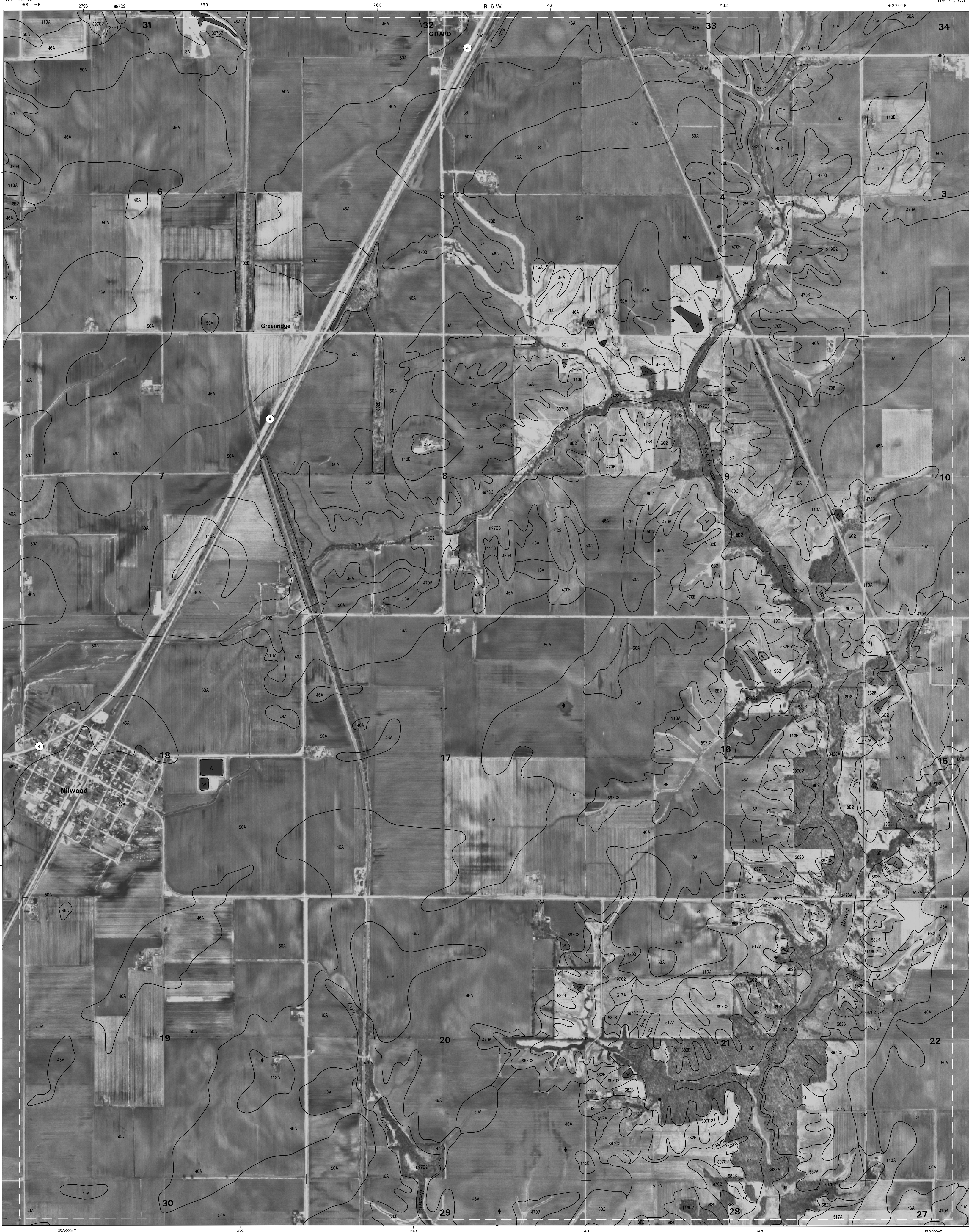
VIRDEN SOUTH SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 22 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
VIRDEN SOUTH SE QUADRANGLE
SHEET NUMBER 23 OF 72



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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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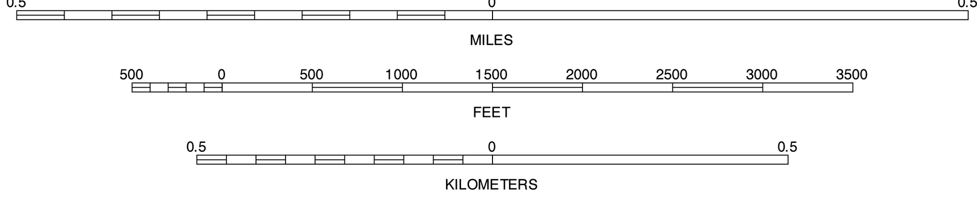
SCALE 1:12000



1	2	3
4		5
6	7	8

1 VIRDEN SOUTH NW (SHEET 14)
2 VIRDEN SOUTH NE (SHEET 15)
3 FARMERSVILLE NW (SHEET 16)
4 VIRDEN SOUTH SW (SHEET 22)
5 FARMERSVILLE SW (SHEET 24)
6 CARLINVILLE EAST NW (SHEET 30)
7 CARLINVILLE EAST NE (SHEET 31)
8 ATWATER NW (SHEET 32)

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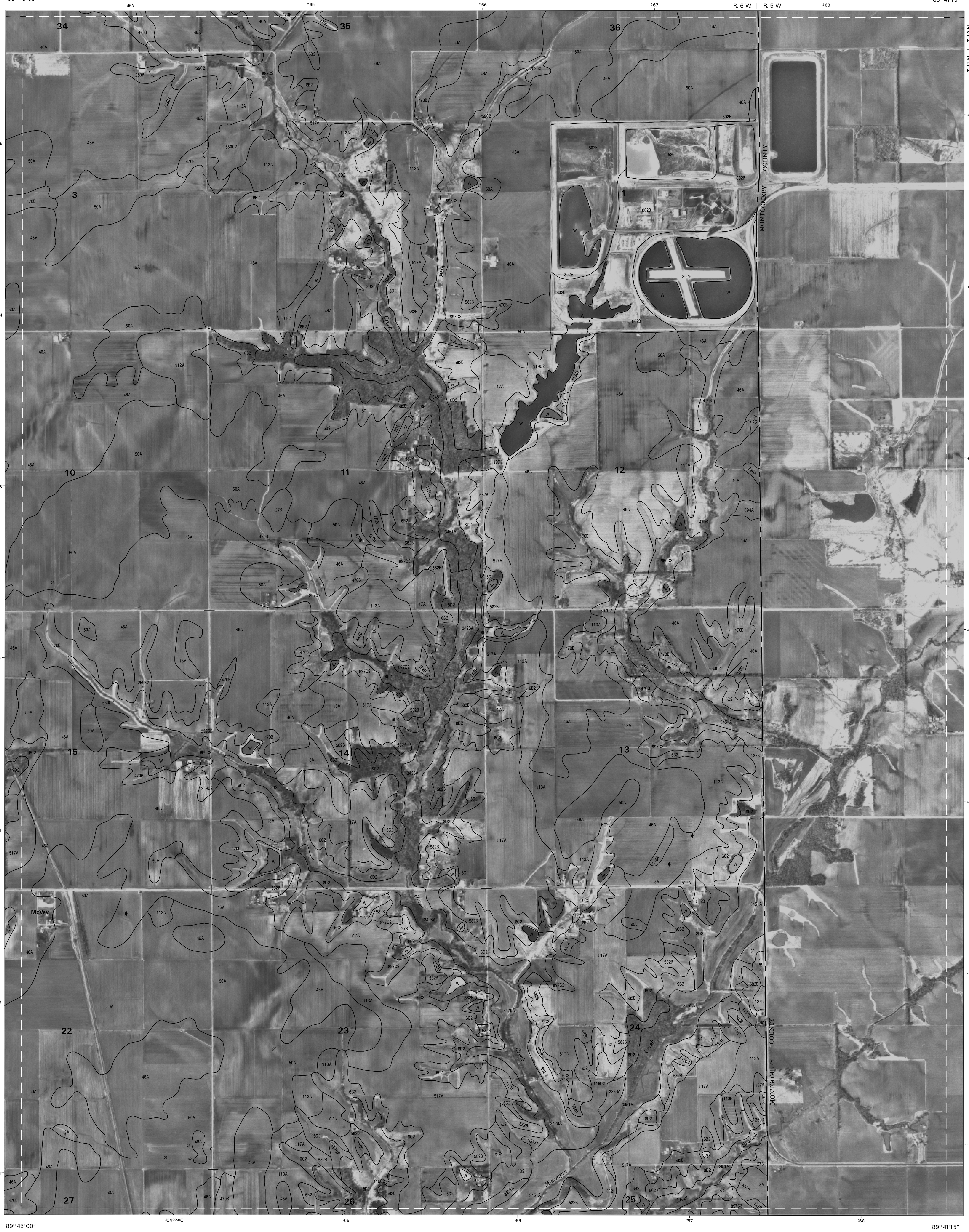
VIRDEN SOUTH SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 23 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
FARMERSVILLE SW QUADRANGLE
SHEET NUMBER 24 OF 72



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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3	1	VIRDEN SOUTH NE (SHEET 15)
			2	FARMERSVILLE NW (SHEET 16)
			3	FARMERSVILLE NE
4		5	4	VIRDEN SOUTH SE (SHEET 23)
			5	FARMERSVILLE SE
			6	CARLINVILLE EAST NE (SHEET 31)
6	7	8	7	ATWATER NW (SHEET 32)
			8	ATWATER NE

INDEX TO ADJOINING 3.75 MAPS

FARMERSVILLE SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 24 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
GREENFIELD NE QUADRANGLE
SHEET NUMBER 25 OF 72

90°11'15" $^{7}43^{000m}$E $^{7}44$ $^{7}45$ R. 10 W. | R. 9 W. $^{7}46$ $^{7}47$ 90°07'30"

39°22'30" 39°22'30"

39°18'45" 39°18'45"

90°11'15" $^{7}43^{000m}$E $^{7}44$ $^{7}45$ $^{7}46$ $^{7}47$ 90°07'30"

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 ATHENSVILLE SW
2 ATHENSVILLE SE (SHEET 17)
3 SCOTTVILLE SW (SHEET 18)
4 GREENFIELD NW
5 HETTICK NW (SHEET 26)
6 GREENFIELD SW
7 GREENFIELD SE (SHEET 33)
8 HETTICK SW (SHEET 34)

INDEX TO ADJOINING 3.75 MAPS

GREENFIELD NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 25 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
HETTICK NW QUADRANGLE
SHEET NUMBER 26 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 — 0 — 0.5

FEET: 500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500

KILOMETERS: 0.5 — 0 — 0.5

1	2	3
4		5
6	7	8

1 ATHENSVILLE SE (SHEET 17)
2 SCOTTVILLE SW (SHEET 18)
3 SCOTTVILLE SE (SHEET 19)
4 GREENFIELD NE (SHEET 25)
5 HETTICK NE (SHEET 27)
6 GREENFIELD SE (SHEET 33)
7 HETTICK SW (SHEET 34)
8 HETTICK SE (SHEET 35)

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HETTICK NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 26 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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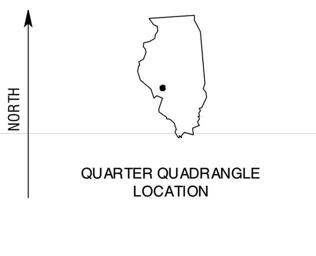
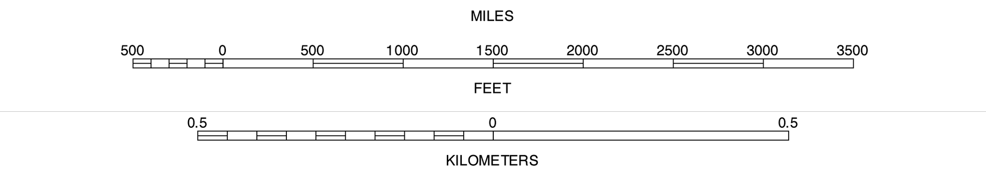
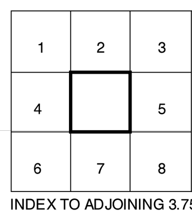


QUARTER QUADRANGLE LOCATION

SCALE 1:12000





1 SCOTTVILLE SW (SHEET 18)
2 SCOTTVILLE SE (SHEET 19)
3 PALMYRA SW (SHEET 20)
4 HETTICK NW (SHEET 26)
5 CARLINVILLE WEST NW (SHEET 28)
6 HETTICK SW (SHEET 34)
7 HETTICK SE (SHEET 35)
8 CARLINVILLE WEST SW (SHEET 36)

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HETTICK NE, ILLINOIS
3.75 MINUTE SERIES

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
CARLINVILLE WEST NW QUADRANGLE
SHEET NUMBER 28 OF 72

SCALE 1:12000

MILES

FEET

KILOMETERS

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
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NORTH

QUARTER QUADRANGLE LOCATION

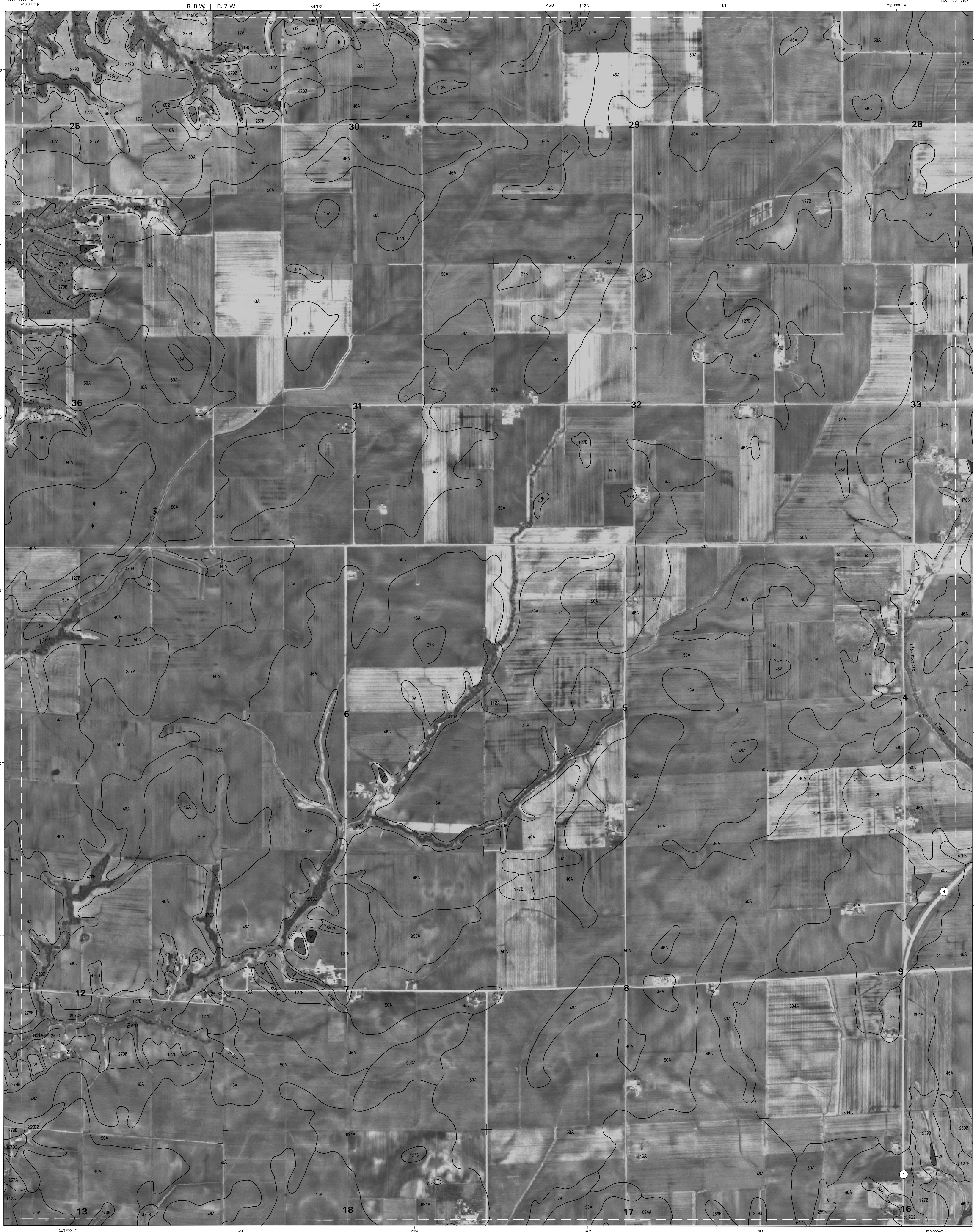
1	2	3
4		5
6	7	8

1 SCOTTVILLE SE (SHEET 19)
2 PALMYRA SW (SHEET 20)
3 PALMYRA SE (SHEET 21)
4 HETTICK NE (SHEET 27)
5 CARLINVILLE WEST NE (SHEET 29)
6 HETTICK SE (SHEET 35)
7 CARLINVILLE WEST SW (SHEET 36)
8 CARLINVILLE WEST SE (SHEET 37)

INDEX TO ADJOINING 3.75 MAPS

CARLINVILLE WEST NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 28 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE



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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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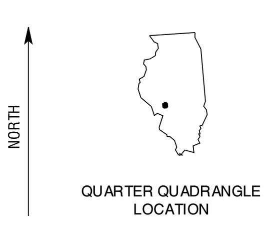

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 | 0 | 0.5
MILES

500 | 0 | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 3500
FEET

0.5 | 0 | 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 PALMYRA SW (SHEET 20)
2 PALMYRA SE (SHEET 21)
3 VIRDEN SOUTH SW (SHEET 22)
4 CARLINVILLE WEST NW (SHEET 28)
5 CARLINVILLE EAST NW (SHEET 30)
6 CARLINVILLE WEST SW (SHEET 36)
7 CARLINVILLE WEST SE (SHEET 37)
8 CARLINVILLE EAST SW (SHEET 38)

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CARLINVILLE WEST NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 29 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
CARLINVILLE EAST NW QUADRANGLE
SHEET NUMBER 30 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83), GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 PALMYRA SE (SHEET 21)
2 VIRDEN SOUTH SW (SHEET 22)
3 VIRDEN SOUTH SE (SHEET 23)
4 CARLINVILLE WEST NE (SHEET 29)
5 CARLINVILLE EAST NE (SHEET 31)
6 CARLINVILLE WEST SE (SHEET 37)
7 CARLINVILLE EAST SW (SHEET 38)
8 CARLINVILLE EAST SE (SHEET 39)

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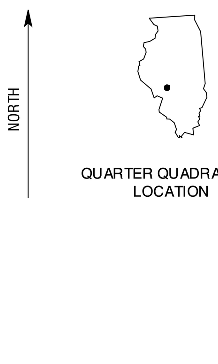
CARLINVILLE EAST NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 30 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
CARLINVILLE EAST NE QUADRANGLE
SHEET NUMBER 31 OF 72

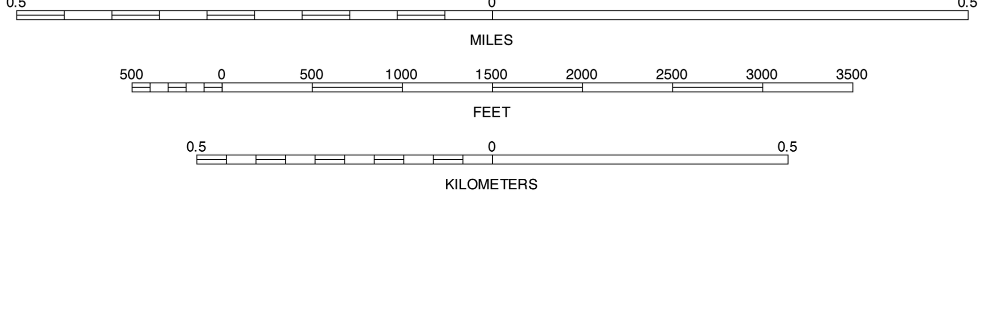
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 VIRDEN SOUTH SW (SHEET 22)
2 VIRDEN SOUTH SE (SHEET 23)
3 FARMERSVILLE SW (SHEET 24)
4 CARLINVILLE EAST NW (SHEET 30)
5 ATWATER NW (SHEET 32)
6 CARLINVILLE EAST SW (SHEET 38)
7 CARLINVILLE EAST SE (SHEET 39)
8 ATWATER SW (SHEET 40)

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CARLINVILLE EAST NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 31 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
ATWATER NW QUADRANGLE
SHEET NUMBER 32 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 VIRDEN SOUTH SE (SHEET 23)
2 FARMERSVILLE SW (SHEET 24)
3 FARMERSVILLE SE
4 CARLINVILLE EAST NE (SHEET 31)
5 ATWATER NE
6 CARLINVILLE EAST SE (SHEET 39)
7 ATWATER SW (SHEET 40)
8 ATWATER SE

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ATWATER NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 32 OF 72

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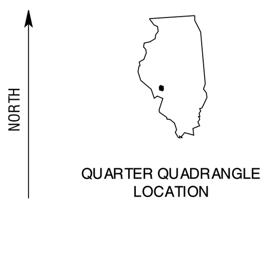

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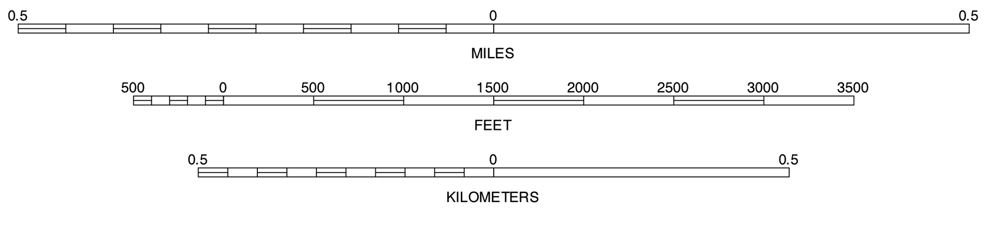

1	2	3
4		5
6	7	8

1 GREENFIELD NW
2 GREENFIELD NE (SHEET 25)
3 HETTICK NW (SHEET 26)
4 GREENFIELD SW
5 HETTICK SW (SHEET 34)
6 MEDORA NW
7 MEDORA NE (SHEET 41)
8 SUMMERVILLE NW (SHEET 42)

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
HETTICK SW QUADRANGLE

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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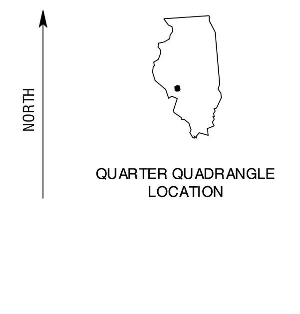

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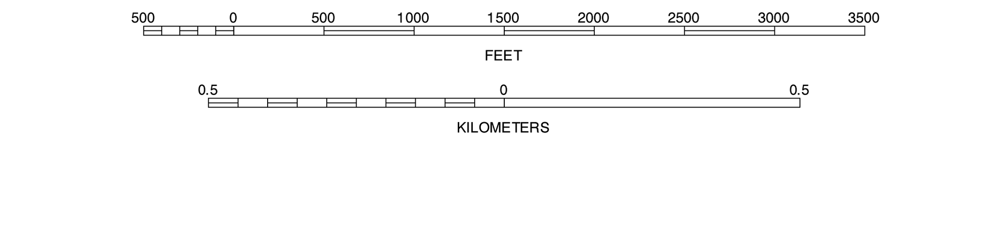

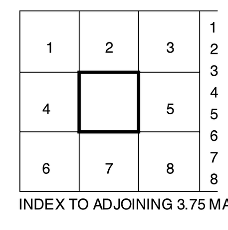

1 GREENFIELD NE (SHEET 25)
2 HETTICK NW (SHEET 26)
3 HETTICK NE (SHEET 27)
4 GREENFIELD SE (SHEET 33)
5 HETTICK SE (SHEET 35)
6 MEDORA NE (SHEET 41)
7 SUMMERVILLE NW (SHEET 42)
8 SUMMERVILLE NE (SHEET 43)

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HETTICK SW, ILLINOIS
3.75 MINUTE SERIES

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
HETTICK SE QUADRANGLE
SHEET NUMBER 35 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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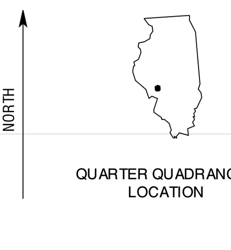
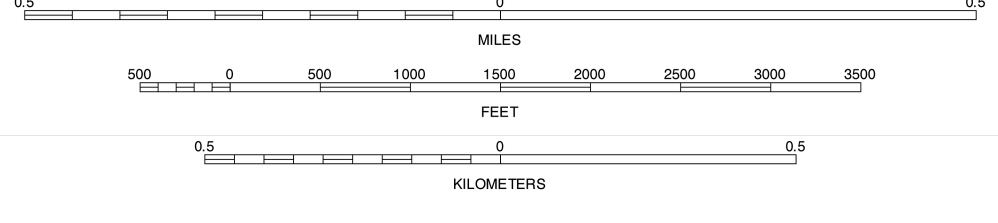
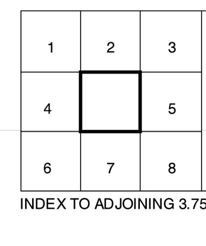


QUARTER QUADRANGLE
LOCATION

SCALE 1:12000





1 HETTICK NW (SHEET 26)
2 HETTICK NE (SHEET 27)
3 CARLINVILLE WEST NW (SHEET 28)
4 HETTICK SW (SHEET 34)
5 CARLINVILLE WEST SW (SHEET 36)
6 SUMMERVILLE NW (SHEET 42)
7 SUMMERVILLE NE (SHEET 43)
8 PLAINVIEW NW (SHEET 44)

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HETTICK SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 35 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
CARLINVILLE WEST SW QUADRANGLE
SHEET NUMBER 36 OF 72

90° 00′00″ | R. 8 W. | 89° 56′15″

39°18′45″

39°15′00″

90° 00′00″ | 89° 56′15″

SCALE 1:12000

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North American Datum of 1983 (NAD83), GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
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NORTH

QUARTER QUADRANGLE LOCATION

MILES

FEET

KILOMETERS

1 HETTICK NE (SHEET 27)
2 CARLINVILLE WEST NW (SHEET 28)
3 CARLINVILLE WEST NE (SHEET 29)
4 HETTICK SE (SHEET 35)
5 CARLINVILLE WEST SE (SHEET 37)
6 SUMMERVILLE NE (SHEET 43)
7 PLAINVIEW NW (SHEET 44)
8 PLAINVIEW NE (SHEET 45)

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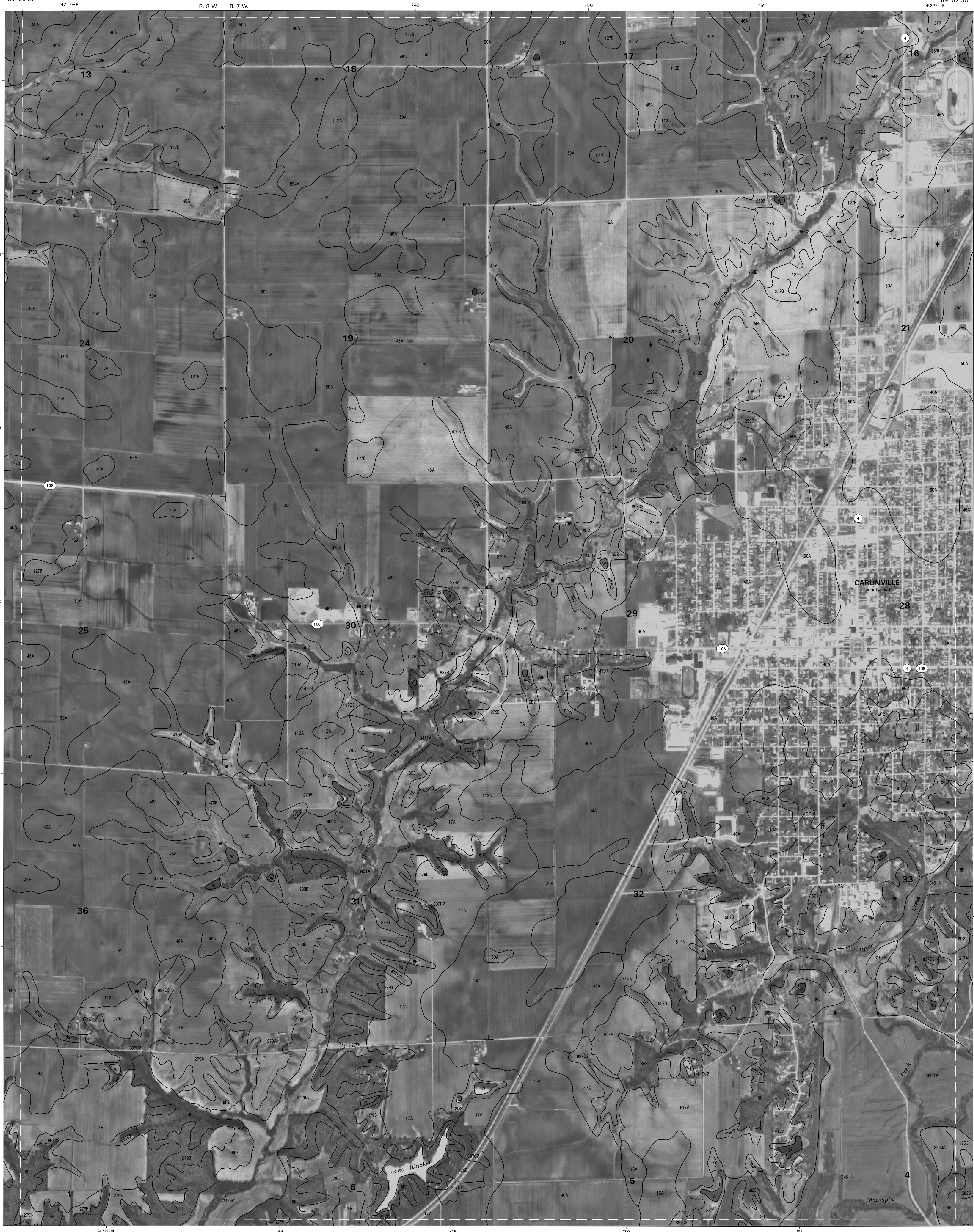
CARLINVILLE WEST SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 36 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE



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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 CARLINVILLE WEST NW (SHEET 28)
2 CARLINVILLE WEST NE (SHEET 29)
3 CARLINVILLE EAST NW (SHEET 30)
4 CARLINVILLE WEST SW (SHEET 36)
5 CARLINVILLE EAST SW (SHEET 38)
6 PLAINVIEW NW (SHEET 44)
7 PLAINVIEW NE (SHEET 45)
8 GILLESPIE NORTH NW (SHEET 46)

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CARLINVILLE WEST SE, ILLINOIS
3.75 MINUTE SERIES

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
CARLINVILLE EAST SW QUADRANGLE
SHEET NUMBER 38 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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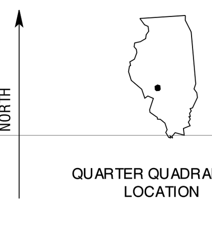
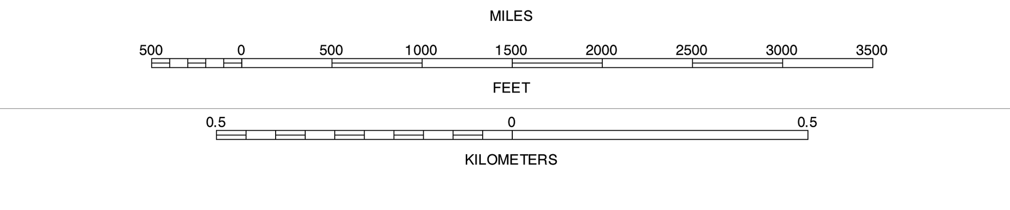


QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 CARLINVILLE WEST NE (SHEET 29)
2 CARLINVILLE EAST NW (SHEET 30)
3 CARLINVILLE EAST NE (SHEET 31)
4 CARLINVILLE WEST SE (SHEET 37)
5 CARLINVILLE EAST SE (SHEET 39)
6 PLAINVIEW NE (SHEET 45)
7 GILLESPIE NORTH NW (SHEET 46)
8 GILLESPIE NORTH NE (SHEET 47)

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CARLINVILLE EAST SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 38 OF 72

89° 48′45″ R. 6 W. 89° 45′00″

39°18′45″ 39°18′45″

39°15′00″ 39°15′00″

89° 48′45″ 89° 45′00″

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 CARLINVILLE EAST NW (SHEET 30)
2 CARLINVILLE EAST NE (SHEET 31)
3 ATWATER NW (SHEET 32)
4 CARLINVILLE EAST SW (SHEET 38)
5 ATWATER SW (SHEET 40)
6 GILLESPIE NORTH NW (SHEET 46)
7 GILLESPIE NORTH NE (SHEET 47)
8 LITCHFIELD NW (SHEET 48)

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
ATWATER SW QUADRANGLE
SHEET NUMBER 40 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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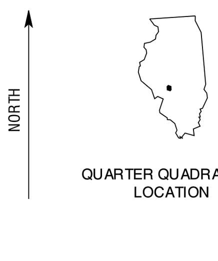
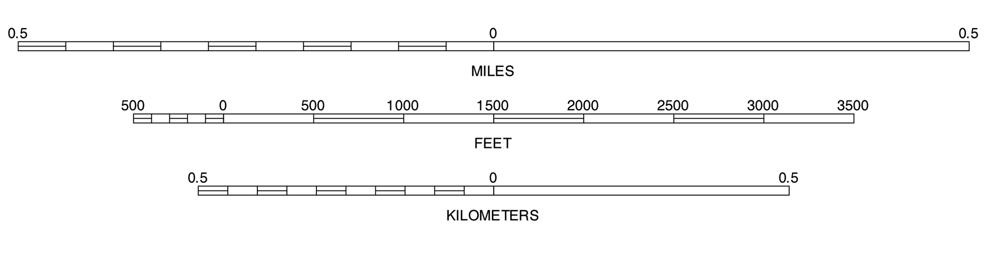
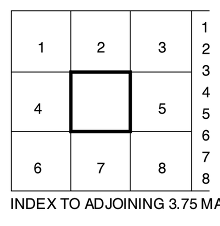


QUARTER QUADRANGLE
LOCATION

SCALE 1:12000





1 CARLINVILLE EAST NE (SHEET 31)
2 ATWATER NW (SHEET 32)
3 ATWATER NE
4 CARLINVILLE EAST SE (SHEET 39)
5 ATWATER SE
6 GILLESPIE NORTH NE (SHEET 47)
7 LITCHFIELD NW (SHEET 48)
8 LITCHFIELD NE

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ATWATER SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 40 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
MEDORA NE QUADRANGLE
SHEET NUMBER 41 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1 GREENFIELD SW
2 GREENFIELD SE (SHEET 33)
3 HETTICK SW (SHEET 34)
4 MEDORA NW
5 SUMMERVILLE NW (SHEET 42)
6 MEDORA SW
7 MEDORA SE (SHEET 49)
8 SUMMERVILLE SW (SHEET 50)

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MEDORA NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 41 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
SUMMERVILLE NW QUADRANGLE
SHEET NUMBER 42 OF 72

SCALE 1:12000

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NORTH

QUARTER QUADRANGLE LOCATION

MILES

FEET

KILOMETERS

1 GREENFIELD SE (SHEET 33)
2 HETTICK SW (SHEET 34)
3 HETTICK SE (SHEET 35)
4 MEDORA NE (SHEET 41)
5 SUMMERVILLE NE (SHEET 43)
6 MEDORA SE (SHEET 49)
7 SUMMERVILLE SW (SHEET 50)
8 SUMMERVILLE SE (SHEET 51)

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SUMMERVILLE NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 42 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
SUMMERVILLE NE QUADRANGLE
SHEET NUMBER 43 OF 72

SCALE 1:12000

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NORTH

QUARTER QUADRANGLE LOCATION

MILES

FEET

KILOMETERS

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1 HETTICK SW (SHEET 34)
2 HETTICK SE (SHEET 35)
3 CARLINVILLE WEST SW (SHEET 36)
4 SUMMERVILLE NW (SHEET 42)
5 PLAINVIEW NW (SHEET 44)
6 SUMMERVILLE SW (SHEET 50)
7 SUMMERVILLE SE (SHEET 51)
8 PLAINVIEW SW (SHEET 52)

SUMMERVILLE NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 43 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
PLAINVIEW NW QUADRANGLE
SHEET NUMBER 44 OF 72

SCALE 1:12000

MILES

FEET

KILOMETERS

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NORTH

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 HETTICK SE (SHEET 35)
2 CARLINVILLE WEST SW (SHEET 36)
3 CARLINVILLE WEST SE (SHEET 37)
4 SUMMERVILLE NE (SHEET 43)
5 PLAINVIEW NE (SHEET 45)
6 SUMMERVILLE SE (SHEET 51)
7 PLAINVIEW SW (SHEET 52)
8 PLAINVIEW SE (SHEET 53)

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PLAINVIEW NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 44 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

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1000-meter ticks: Universal Transverse Mercator, zone 16.
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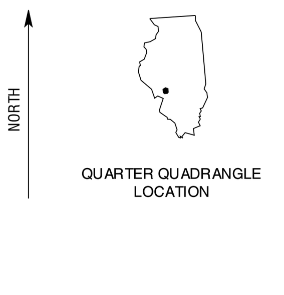

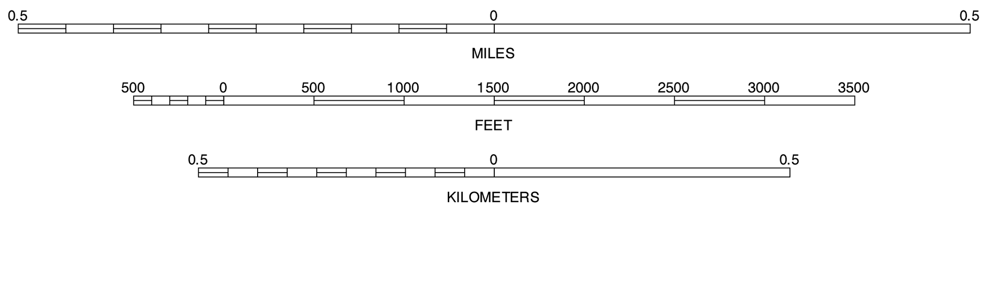

1	2	3
4		5
6	7	8

1 CARLINVILLE WEST SW (SHEET 36)
2 CARLINVILLE WEST SE (SHEET 37)
3 CARLINVILLE EAST SW (SHEET 38)
4 PLAINVIEW NW (SHEET 44)
5 GILLESPIE NORTH NW (SHEET 46)
6 PLAINVIEW SW (SHEET 52)
7 PLAINVIEW SE (SHEET 53)
8 GILLESPIE NORTH SW (SHEET 54)

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SCALE 1:12000

MILES 0.5 0 0.5

FEET 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS 0.5 0 0.5

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NORTH

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 CARLINVILLE WEST SE (SHEET 37)
2 CARLINVILLE EAST SW (SHEET 38)
3 CARLINVILLE EAST SE (SHEET 39)
4 PLAINVIEW NE (SHEET 45)
5 GILLESPIE NORTH NE (SHEET 47)
6 PLAINVIEW SE (SHEET 53)
7 GILLESPIE NORTH SW (SHEET 54)
8 GILLESPIE NORTH SE (SHEET 55)

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GILLESPIE NORTH NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 46 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
GILLESPIE NORTH NE QUADRANGLE
SHEET NUMBER 47 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1 CARLINVILLE EAST SW (SHEET 38)
2 CARLINVILLE EAST SE (SHEET 39)
3 ATWATER SW (SHEET 40)
4 GILLESPIE NORTH NW (SHEET 46)
5 LITCHFIELD NW (SHEET 48)
6 GILLESPIE NORTH SW (SHEET 54)
7 GILLESPIE NORTH SE (SHEET 55)
8 LITCHFIELD SW (SHEET 56)

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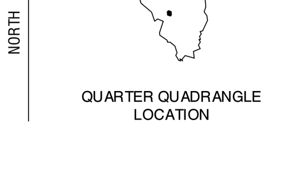
GILLESPIE NORTH NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 47 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

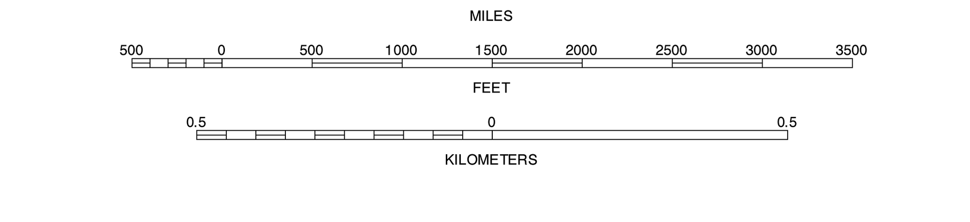
MACOUPIN COUNTY, ILLINOIS
LITCHFIELD NW QUADRANGLE
SHEET NUMBER 48 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.



SCALE 1:12000



1	2	3
4		5
6	7	8

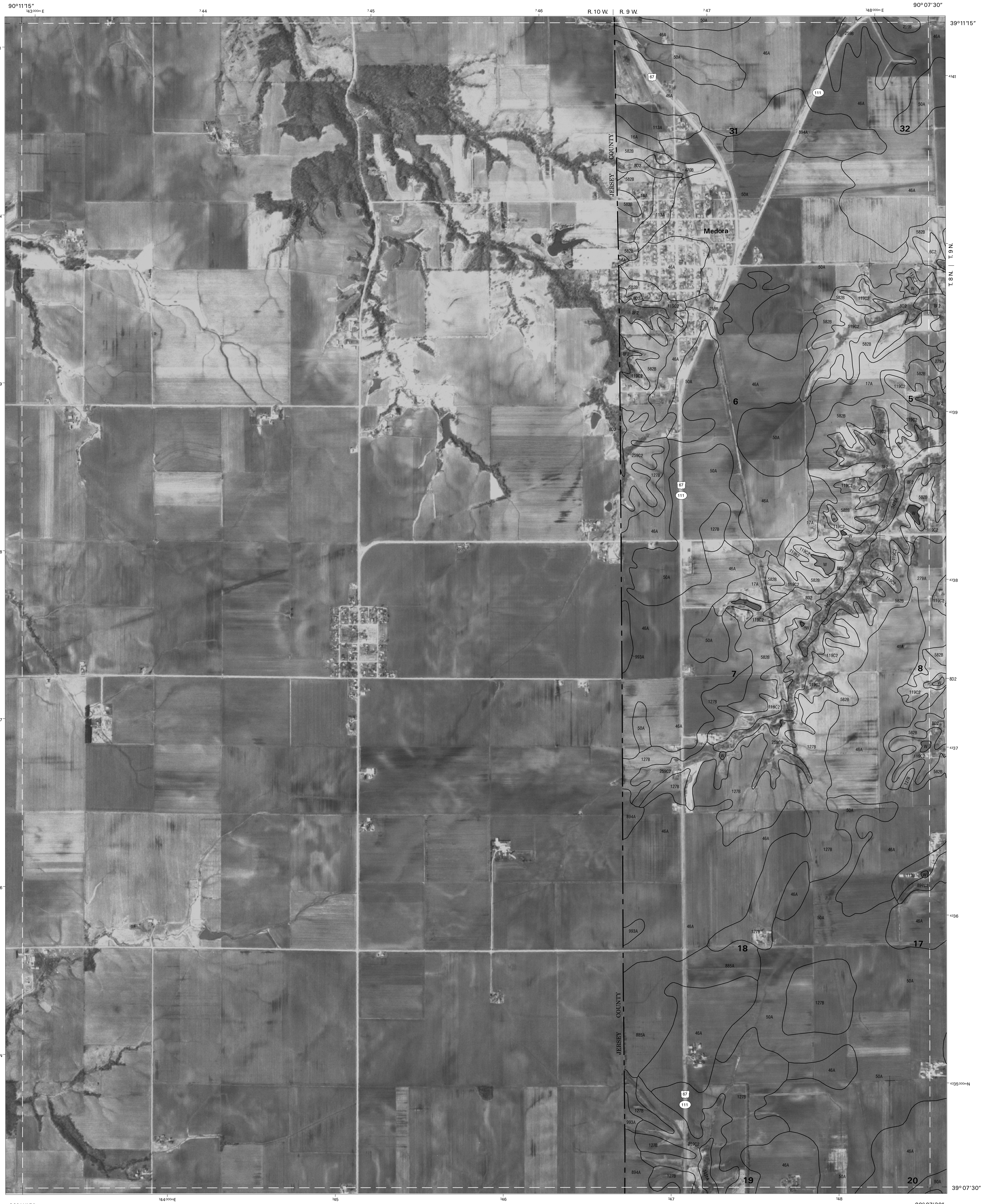
1 CARLINVILLE EAST SE (SHEET 39)
2 ATWATER SW (SHEET 40)
3 ATWATER SE
4 GILLESPIE NORTH NE (SHEET 47)
5 LITCHFIELD NE
6 GILLESPIE NORTH SE (SHEET 55)
7 LITCHFIELD SW (SHEET 56)
8 LITCHFIELD SE

INDEX TO ADJOINING 3.75 MAPS

LITCHFIELD NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 48 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
MEDORA SE QUADRANGLE
SHEET NUMBER 49 OF 72

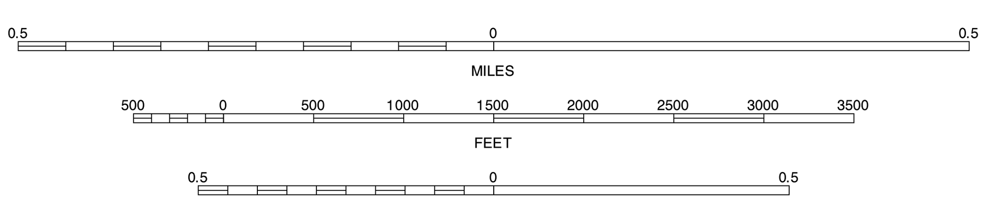


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 15.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 MEDORA NW
2 MEDORA NE (SHEET 41)
3 SUMMERVILLE NW (SHEET 42)
4 MEDORA SW
5 SUMMERVILLE SW (SHEET 50)
6 BRIGHTON NW
7 BRIGHTON NE (SHEET 57)
8 SHIPMAN NW (SHEET 58)

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MEDORA SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 49 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
SUMMERVILLE SW QUADRANGLE
SHEET NUMBER 50 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 MEDORA NE (SHEET 41)
2 SUMMERVILLE NW (SHEET 42)
3 SUMMERVILLE NE (SHEET 43)
4 MEDORA SE (SHEET 49)
5 SUMMERVILLE SE (SHEET 51)
6 BRIGHTON NE (SHEET 57)
7 SHIPMAN NW (SHEET 58)
8 SHIPMAN NE (SHEET 59)

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SUMMERVILLE SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 50 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 15.
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NORTH

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 SUMMERVILLE NW (SHEET 42)
2 SUMMERVILLE NE (SHEET 43)
3 PLAINVIEW NW (SHEET 44)
4 SUMMERVILLE SW (SHEET 50)
5 PLAINVIEW SW (SHEET 52)
6 SHIPMAN NW (SHEET 58)
7 SHIPMAN NE (SHEET 59)
8 BUNKER HILL NW (SHEET 60)

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
PLAINVIEW SW QUADRANGLE
SHEET NUMBER 52 OF 72

SCALE 1:12000

MILES

FEET

KILOMETERS

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 SUMMERVILLE NE (SHEET 43)
2 PLAINVIEW NW (SHEET 44)
3 PLAINVIEW NE (SHEET 45)
4 SUMMERVILLE SE (SHEET 51)
5 PLAINVIEW SE (SHEET 53)
6 SHIPMAN NE (SHEET 59)
7 BUNKER HILL NW (SHEET 60)
8 BUNKER HILL NE (SHEET 61)

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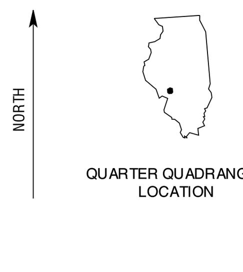
PLAINVIEW SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 52 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
PLAINVIEW SE QUADRANGLE
SHEET NUMBER 53 OF 72

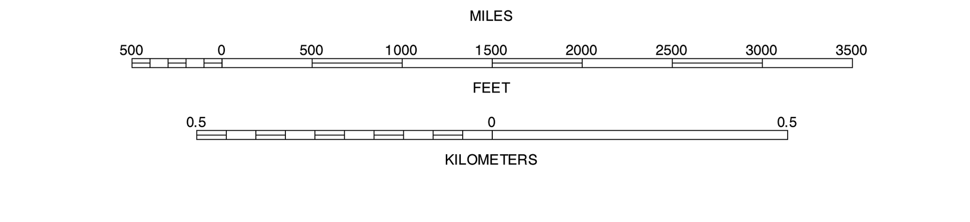
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 PLAINVIEW NW (SHEET 44)
2 PLAINVIEW NE (SHEET 45)
3 GILLESPIE NORTH NW (SHEET 46)
4 PLAINVIEW SW (SHEET 52)
5 GILLESPIE NORTH SW (SHEET 54)
6 BUNKER HILL NW (SHEET 60)
7 BUNKER HILL NE (SHEET 61)
8 GILLESPIE SOUTH NW (SHEET 62)

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PLAINVIEW SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 53 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
GILLESPIE NORTH SW QUADRANGLE
SHEET NUMBER 54 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 PLAINVIEW NE (SHEET 45)
2 GILLESPIE NORTH NW (SHEET 46)
3 GILLESPIE NORTH NE (SHEET 47)
4 PLAINVIEW SE (SHEET 53)
5 GILLESPIE NORTH SE (SHEET 55)
6 BUNKER HILL NE (SHEET 61)
7 GILLESPIE SOUTH NW (SHEET 62)
8 GILLESPIE SOUTH NE (SHEET 63)

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GILLESPIE NORTH SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 54 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
GILLESPIE NORTH SE QUADRANGLE
SHEET NUMBER 55 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 GILLESPIE NORTH NW (SHEET 46)
2 GILLESPIE NORTH NE (SHEET 47)
3 LITCHFIELD NW (SHEET 48)
4 GILLESPIE NORTH SW (SHEET 54)
5 LITCHFIELD SW (SHEET 56)
6 GILLESPIE SOUTH NW (SHEET 62)
7 GILLESPIE SOUTH NE (SHEET 63)
8 MOUNT OLIVE NW (SHEET 64)

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GILLESPIE NORTH SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 55 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
LITCHFIELD SW QUADRANGLE
SHEET NUMBER 56 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 GILLESPIE NORTH NE (SHEET 47)
2 LITCHFIELD NW (SHEET 48)
3 LITCHFIELD NE
4 GILLESPIE NORTH SE (SHEET 55)
5 LITCHFIELD SE
6 GILLESPIE SOUTH NE (SHEET 63)
7 MOUNT OLIVE NW (SHEET 64)
8 MOUNT OLIVE NE

INDEX TO ADJOINING 3.75 MAPS

LITCHFIELD SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 56 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
BRIGHTON NE QUADRANGLE
SHEET NUMBER 57 OF 72

SCALE 1:12000

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

1 MEDORA SW
2 MEDORA SE (SHEET 49)
3 SUMMERVILLE SW (SHEET 50)
4 BRIGHTON NW
5 SHIPMAN NW (SHEET 58)
6 BRIGHTON SW
7 BRIGHTON SE (SHEET 65)
8 SHIPMAN SW (SHEET 66)

BRIGHTON NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 57 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
SHIPMAN NW QUADRANGLE
SHEET NUMBER 58 OF 72

SCALE 1:12000

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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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NORTH

QUARTER QUADRANGLE LOCATION

MILES

FEET

KILOMETERS

1 MEDORA SE (SHEET 49)
2 SUMMERVILLE SW (SHEET 50)
3 SUMMERVILLE SE (SHEET 51)
4 BRIGHTON NE (SHEET 57)
5 SHIPMAN NE (SHEET 59)
6 BRIGHTON SE (SHEET 65)
7 SHIPMAN SW (SHEET 66)
8 SHIPMAN SE (SHEET 67)

INDEX TO ADJOINING 3.75 MAPS

SHIPMAN NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 58 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
SHIPMAN NE QUADRANGLE
SHEET NUMBER 59 OF 72

SCALE 1:12000

MILES

FEET

KILOMETERS

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
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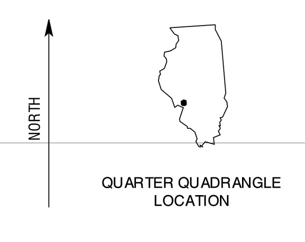

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 SUMMERVILLE SW (SHEET 50)
2 SUMMERVILLE SE (SHEET 51)
3 PLAINVIEW SW (SHEET 52)
4 SHIPMAN NW (SHEET 58)
5 BUNKER HILL NW (SHEET 60)
6 SHIPMAN SW (SHEET 66)
7 SHIPMAN SE (SHEET 67)
8 BUNKER HILL SW (SHEET 68)

INDEX TO ADJOINING 3.75 MAPS

SHIPMAN NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 59 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
BUNKER HILL NW QUADRANGLE
SHEET NUMBER 60 OF 72

SCALE 1:12000

MILES

FEET

KILOMETERS

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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NORTH

QUARTER QUADRANGLE LOCATION

1 SUMMERVILLE SE (SHEET 51)
2 PLAINVIEW SW (SHEET 52)
3 PLAINVIEW SE (SHEET 53)
4 SHIPMAN NE (SHEET 59)
5 BUNKER HILL NE (SHEET 61)
6 SHIPMAN SE (SHEET 67)
7 BUNKER HILL SW (SHEET 68)
8 BUNKER HILL SE (SHEET 69)

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BUNKER HILL NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 60 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

89° 56′15″ | 89° 52′30″
39° 07′30″ | 39° 07′30″

39° 03′45″ | 39° 03′45″
89° 56′15″ | 89° 52′30″

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1000-meter ticks: Universal Transverse Mercator, zone 16.
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 PLAINVIEW SW (SHEET 52)
2 PLAINVIEW SE (SHEET 53)
3 GILLESPIE NORTH SW (SHEET 54)
4 BUNKER HILL NW (SHEET 60)
5 GILLESPIE SOUTH NW (SHEET 62)
6 BUNKER HILL SW (SHEET 68)
7 BUNKER HILL SE (SHEET 69)
8 GILLESPIE SOUTH SW (SHEET 70)

INDEX TO ADJOINING 3.75 MAPS

BUNKER HILL NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 61 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
GILLESPIE SOUTH NW QUADRANGLE
SHEET NUMBER 62 OF 72

SCALE 1:12000

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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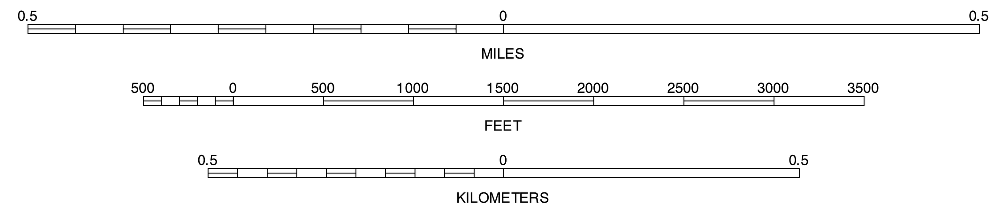
QUARTER QUADRANGLE LOCATION



1 PLAINVIEW SE (SHEET 53)
2 GILLESPIE NORTH SW (SHEET 54)
3 GILLESPIE NORTH SE (SHEET 55)
4 BUNKER HILL NE (SHEET 61)
5 GILLESPIE SOUTH NE (SHEET 63)
6 BUNKER HILL SE (SHEET 69)
7 GILLESPIE SOUTH SW (SHEET 70)
8 GILLESPIE SOUTH SE (SHEET 71)

INDEX TO ADJOINING 3.75 MAPS

GILLESPIE SOUTH NW, ILLINOIS

3.75 MINUTE SERIES
SHEET NUMBER 62 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
GILLESPIE SOUTH NE QUADRANGLE
SHEET NUMBER 63 OF 72

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 GILLESPIE NORTH SW (SHEET 54)
2 GILLESPIE NORTH SE (SHEET 55)
3 LITCHFIELD SW (SHEET 56)
4 GILLESPIE SOUTH NW (SHEET 62)
5 MOUNT OLIVE NW (SHEET 64)
6 GILLESPIE SOUTH SW (SHEET 70)
7 GILLESPIE SOUTH SE (SHEET 71)
8 MOUNT OLIVE SW (SHEET 72)

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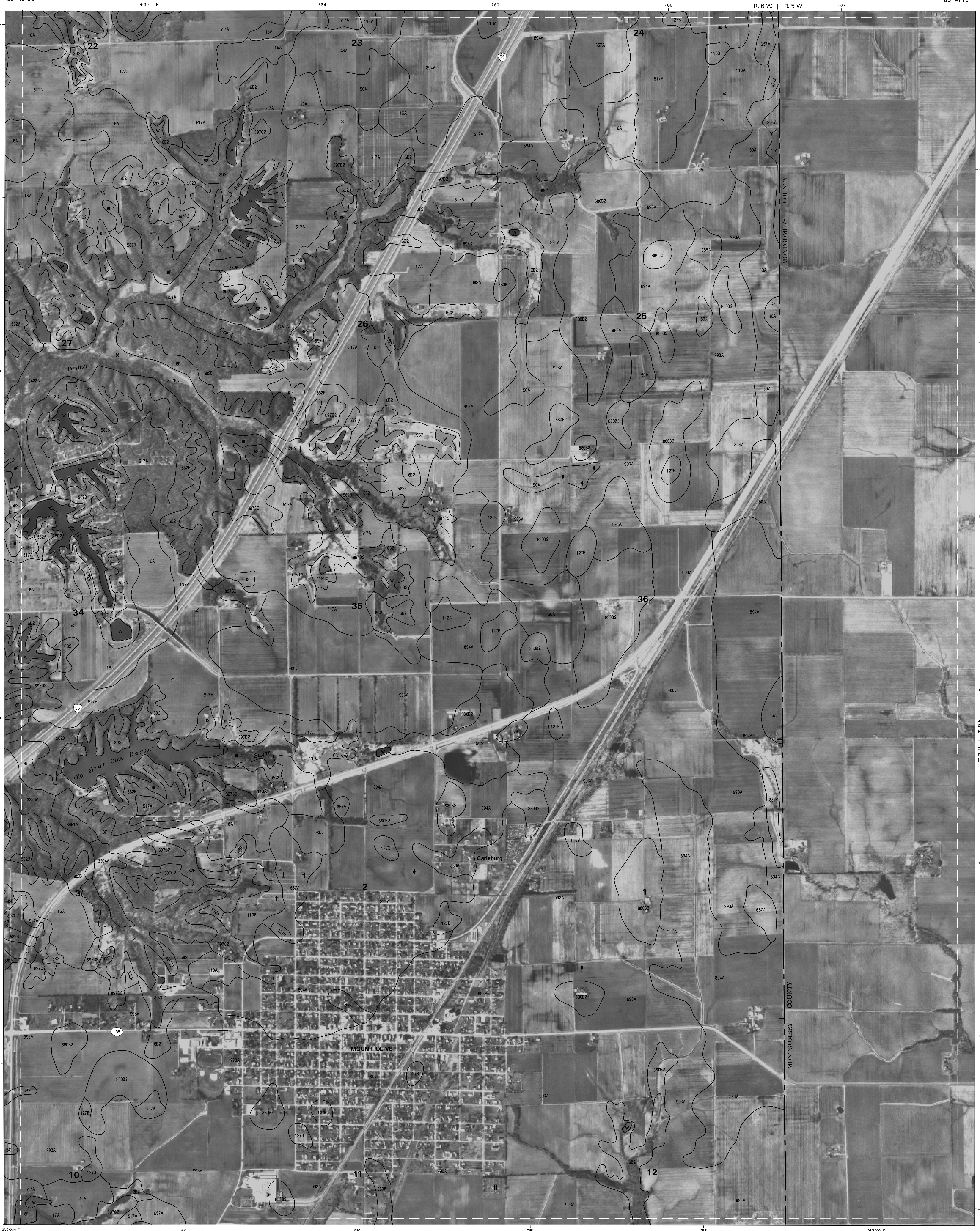
GILLESPIE SOUTH NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 63 OF 72

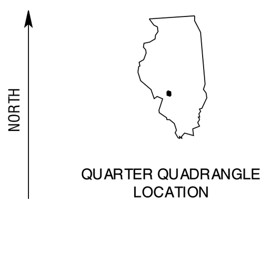
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

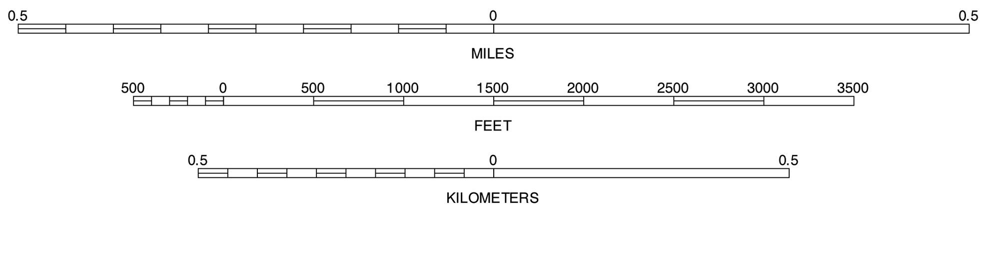


SCALE 1:12000

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.





1 GILLESPIE NORTH SE (SHEET 55)
2 LITCHFIELD SW (SHEET 56)
3 LITCHFIELD SE
4 GILLESPIE SOUTH NE (SHEET 63)
5 MOUNT OLIVE NE
6 GILLESPIE SOUTH SE (SHEET 71)
7 MOUNT OLIVE SW (SHEET 72)
8 MOUNT OLIVE SE

INDEX TO ADJOINING 3.75 MAPS

MOUNT OLIVE NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 64 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
BRIGHTON SE (OVERSIZE) QUADRANGLE
SHEET NUMBER 65 OF 72

90°11'15"   90°07'30"
39°03'45"   39°03'45"

39°00'00"   39°00'00"
90°11'15"   90°07'30"

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Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 15.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjoining map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 BRIGHTON NW
2 BRIGHTON NE (SHEET 57)
3 SHIPMAN NW (SHEET 58)
4 BRIGHTON SW
5 SHIPMAN SW (SHEET 66)
6 ALTON NW
7 ALTON NE
8 BETHALTO NW

INDEX TO ADJOINING 3.75 MAPS

BRIGHTON SE (OVERSIZE), ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 65 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
SHIPMAN SW (OVERSIZE) QUADRANGLE
SHEET NUMBER 66 OF 72

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1	2	3
4		5
6	7	8

1 BRIGHTON NE (SHEET 57)
2 SHIPMAN NW (SHEET 58)
3 SHIPMAN NE (SHEET 59)
4 BRIGHTON SE (SHEET 65)
5 SHIPMAN SE (SHEET 67)
6 ALTON NE
7 BETHALTO NW
8 BETHALTO NE

INDEX TO ADJOINING 3.75 MAPS

SHIPMAN SW (OVERSIZE), ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 66 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

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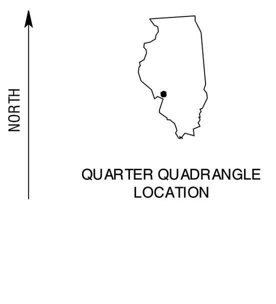
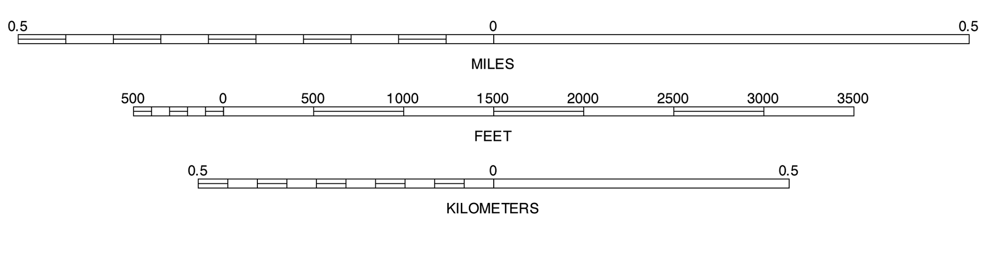
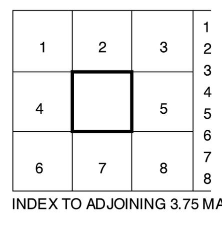


QUARTER QUADRANGLE LOCATION

SCALE 1:12000





1 SHIPMAN NW (SHEET 58)
2 SHIPMAN NE (SHEET 59)
3 BUNKER HILL NW (SHEET 60)
4 SHIPMAN SW (SHEET 66)
5 BUNKER HILL SW (SHEET 68)
6 BETHALTO NW
7 BETHALTO NE
8 PRAIRIETOWN NW

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SHIPMAN SE (OVERSIZE), ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 67 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
BUNKER HILL SW (OVERSIZE) QUADRANGLE
SHEET NUMBER 68 OF 72

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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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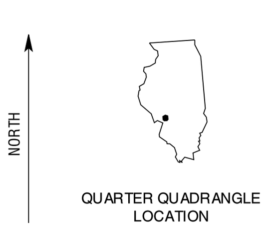

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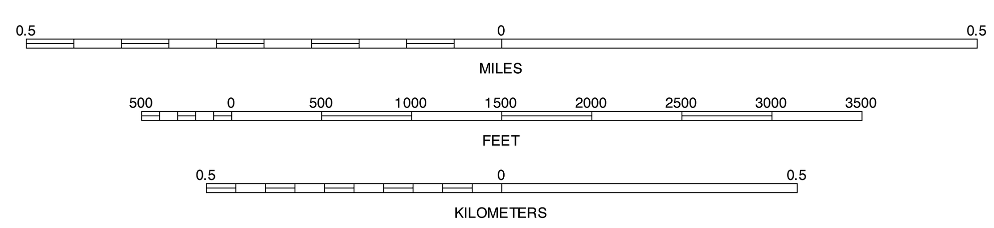

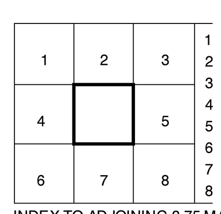

1 SHIPMAN NE (SHEET 59)
2 BUNKER HILL NW (SHEET 60)
3 BUNKER HILL NE (SHEET 61)
4 SHIPMAN SE (SHEET 67)
5 BUNKER HILL SE (SHEET 69)
6 BETHALTO NE
7 PRAIRIETOWN NW
8 PRAIRIETOWN NE

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BUNKER HILL SW (OVERSIZE), ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 68 OF 72

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
BUNKER HILL SE (OVERSIZE) QUADRANGLE
SHEET NUMBER 69 OF 72

SCALE 1:12000

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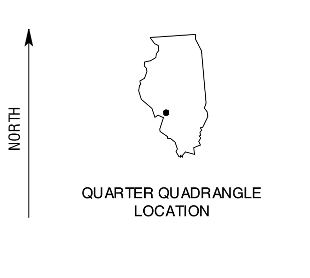
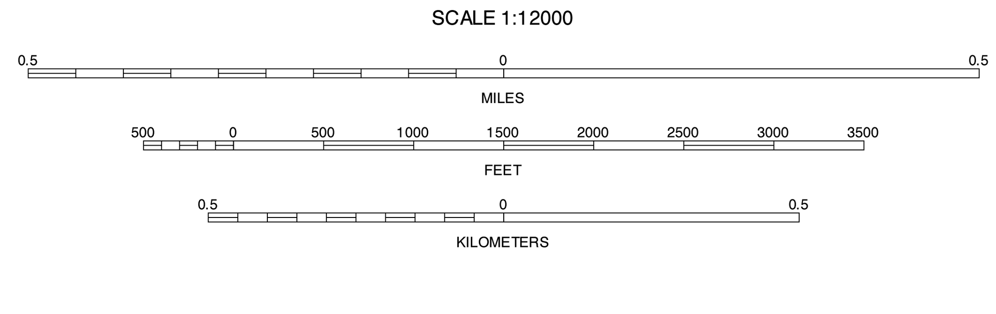


QUADRANGLE LOCATION



1	2	3
4		5
6	7	8

1 BUNKER HILL NW (SHEET 60)
2 BUNKER HILL NE (SHEET 61)
3 GILLESPIE SOUTH NW (SHEET 62)
4 BUNKER HILL SW (SHEET 68)
5 GILLESPIE SOUTH SW (SHEET 70)
6 PRAIRIETOWN NW
7 PRAIRIETOWN NE
8 WORDEN NW

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BUNKER HILL SE (OVERSIZE), ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 69 OF 72

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 BUNKER HILL NE (SHEET 61)
2 GILLESPIE SOUTH NW (SHEET 62)
3 GILLESPIE SOUTH NE (SHEET 63)
4 BUNKER HILL SE (SHEET 69)
5 GILLESPIE SOUTH SE (SHEET 71)
6 PRAIRIETOWN NE
7 WORDEN NW
8 WORDEN NE

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

1 GILLESPIE SOUTH NW (SHEET 62)
2 GILLESPIE SOUTH NE (SHEET 63)
3 MOUNT OLIVE NW (SHEET 64)
4 GILLESPIE SOUTH SW (SHEET 70)
5 MOUNT OLIVE SW (SHEET 72)
6 WORDEN NW
7 WORDEN NE
8 NEW DOUGLAS NW

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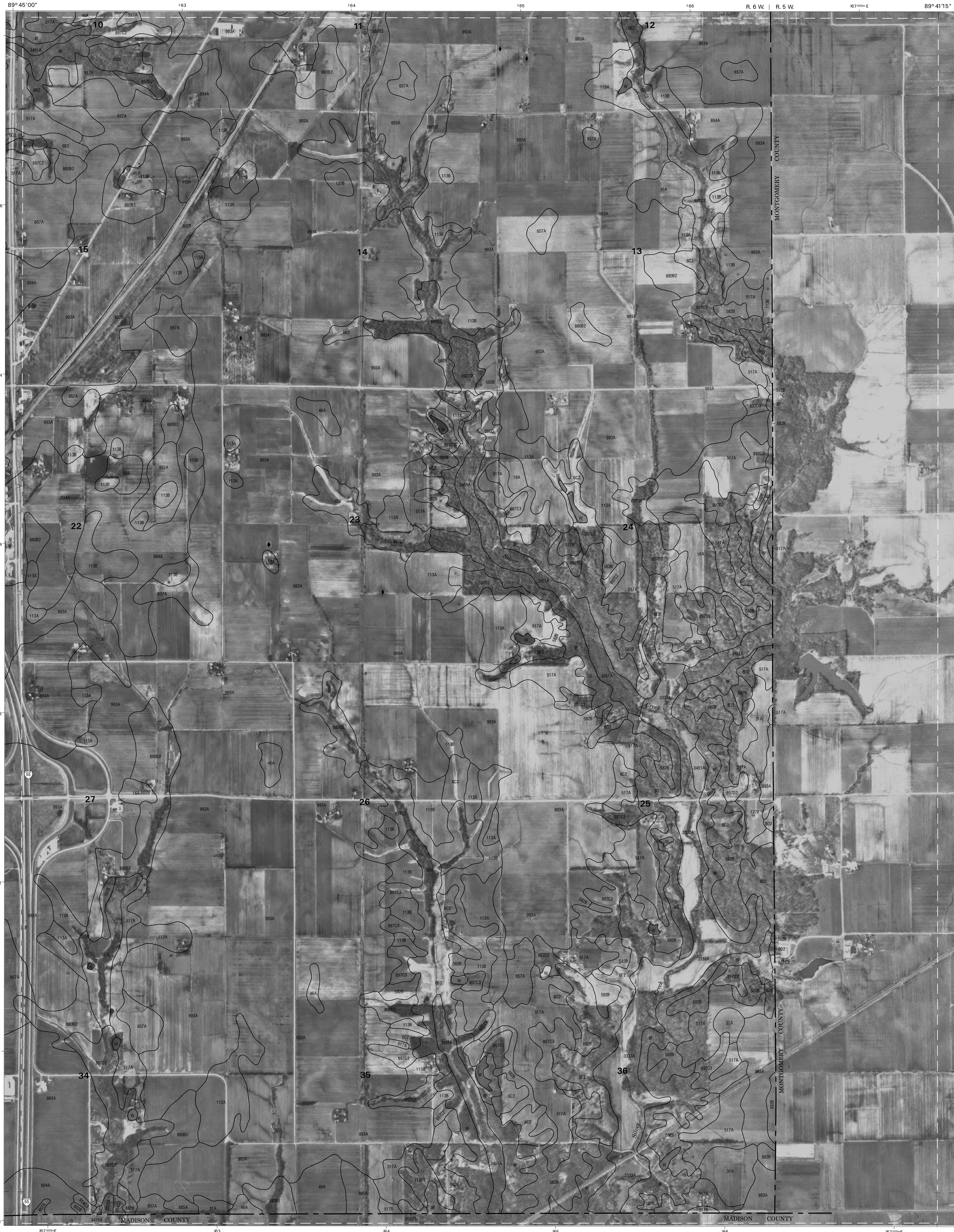
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MACOUPIN COUNTY, ILLINOIS
MOUNT OLIVE SW (OVERSIZE) QUADRANGLE
SHEET NUMBER 72 OF 72



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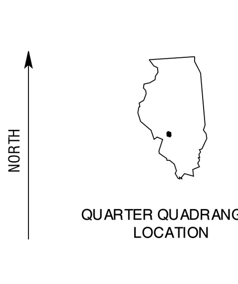

QUARTER QUADRANGLE
LOCATION

SCALE 1:12000

0.5 — 0 — 0.5
MILES

500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500
FEET

0.5 — 0 — 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 GILLESPIE SOUTH NE (SHEET 63)
2 MOUNT OLIVE NW (SHEET 64)
3 MOUNT OLIVE NE
4 GILLESPIE SOUTH SE (SHEET 71)
5 MOUNT OLIVE SE
6 WORDEN NE
7 NEW DOUGLAS NW
8 NEW DOUGLAS NE

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MOUNT OLIVE SW (OVERSIZE), ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 72 OF 72